NATIONAL CAR BUILDER

VOLUME XIV. NUMBER 11.

DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

$1.00 PER ANNUM. SINGLE NUMBERS, TEN CENTS.

NEW YORK: Morse Building, 140 Nassau St.

NOVEMBER, 1883.

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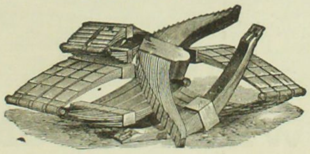

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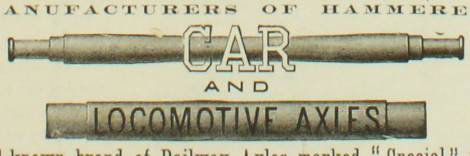

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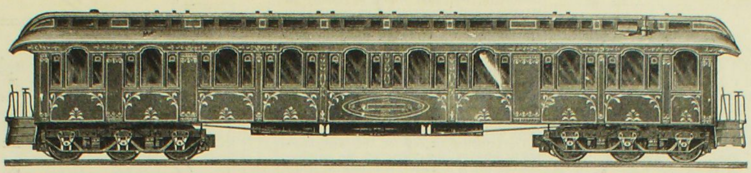
Index to Advertisements in the National Car-Builder.

THE NATIONAL CAR-BUILDER.



DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

VOLUME XIV. NUMBER 11. | NOVEMBER, 1883. | SINGLE NUMBERS, TEN CENTS. $1.00 PER ANNUM.

Miscellaneous Items.

THE New York offices of the Allen Paper Car Wheel Co. have been removed to 239 Broadway. The company now have facilities for turning out 36,000 wheels yearly.

THE Gilbert Car Manufacturing Co., Troy, N. Y., is building 500 freight cars for the government railways of Chili. They are to be fitted with the Westinghouse freight brake.

THEY are building, in the Delaware & Hudson Canal Company's Green Island shops, a snow plough 29 feet long by 10 wide and 10 feet 6 inches high. It will require four locomotives to push it.

THE New York Locomotive Works, Rome, N. Y., report business very good. They have orders on hand that will keep them busy till March. Large additions have been made to their foundry and store-room, and they are also putting in new machinery.

THE Youngstown (O.) Car Works have just completed 50 drop-bottom gondola cars for the Pittsburg & Lake Erie Road, and are building 300 box and gondolas for the Pittsburg, Cleveland & Toledo, and 30 box, gondola and flat for the Bellaire, Zanesville & Cincinnati.

AN oiler for car-wheels, invented by Howard A. Barrows, Rochester, N. Y., consists of a cup open on its outside, closed at its bottom, and provided with threads on its periphery for screwing into the side of the wheel, said cup being provided at its bottom with a turning disk, and the disk and the bottom of the cup provided with coincident holes for the insertion of oil.

THE shops of the C., C., C. & I. Road, at Cleveland, O., are overhauling five of the old day coaches of the Company, in each of which a smoking-room is being placed in one end, occupying ten feet of the length of the car body. The object is to provide a smoking apartment for first-class passengers who may not want to use the regular smoking-car, which is frequently used as a second-class car.

MR. HENRY W. GWINNER, President of the National Railway Publication Co. and Hoole Manufacturing Co., shot and killed himself, Oct. 16, at his office, 46 Bond street, New York. He was for many years in the service of the Pennsylvania Railroad Co. as General Passenger Agent, and also as Auditor of Passenger Receipts, but resigned the latter position in 1880 and came to New York. He was about 60 years of age, and widely known among railroad men.

THE water supplied to locomotives on the line of the New York Central, between Syracuse and Buffalo, causes much trouble from incrustation. Mr. Amos Gould, the Master Mechanic of the locomotive repair shops at East Buffalo, showed us a few days ago some specimens of scale taken from the crown-sheets of engines that had been running about a year on this Division. It was $\frac{5}{16}$ of an inch in thickness and apparently as hard as granite. The accumulations on the flues were nearly half as thick after running six months.

THE Woodruff Sleeping & Parlor Coach Co., of Pittsburg, has built for the Pittsburg & Erie road a *salon* coach named the "Kalkaska," which is described as a very fine specimen of car construction. It is of the ordinary size and very luxuriously furnished throughout. The principal apartment has 18 pivotal chairs upholstered in a delicate shade of olive green. The cabinet work is in mahogany and cherry, the trimmings silver plated, and the floor laid with Moquette carpet. There are also smoking rooms, lavatories, closets, etc.

THE Cartersville Car Co., at Cartersville, Ga., has been reorganized and transferred to Anniston, Ala., under the name of the Anniston Car Factory. Col. Edward L. Tyler, of the latter place, has been chosen President of the company, and Capt. C. E. Lucas, Superintendent. The Anniston *Hot Blast*, the local paper, says that the company is fully equipped to make cars for every railroad in the country, that they have unlimited capital and employ none but the most skilled workmen, and make anything from a hand-car to a Pullman drawing room coach.

DURING the year 1882, there were repaired and built at the West Albany shops of the New York Central road 61,611 cars, including the following new cars: 24 passenger, 1 dining, 4 baggage and postal, 445 freight, 20 conductor, 2 derrick cars and 1 pile driver. The number of freight cars repaired belonging to the New York Central was 25,160, and the number belonging to other roads 31,787. The following quantities of material were manufactured and sent away during the year: 293,394 feet of lumber, 983,106 lbs. of wrought iron, 143,946 lbs. of brasses, and 2,440,397 lbs. of iron castings.

THE Miltimore Elastic Steel Car-Wheel Company has purchased the extensive shops built a year or two ago at Garfield, a new suburb just northwest of Chicago, by the Chicago Locomotive Works, but which were never occupied. The parties interested in this company have also purchased, in addition to the works, a tract of over one thousand acres of land, at a cost of about one million of dollars, and proposes to build here an extensive manufacturing town in connection with the car-wheel works. The location is on the Iowa division of the Chicago, Milwaukee & St. Paul road, six miles from the depot in Chicago, and only a mile or two beyond the city limits.

THE Schenectady Locomotive Works are building 25 eight-wheel freight engines for the Chicago & Northwestern road; also seven moguls for the Lake Shore & Michigan Southern. The works have just completed 15 consolidated engines, 20 × 24 cylinders, for the Fallsbrook Coal Co. These engines weigh 53 tons in working order. The works have recently been supplied with some new tools of the best and most approved description, and all parts of their engines are made to gauge and templet so as to be interchangeable. They are also building from new designs, with the view of meeting the requirement of more weight for a given size of cylinder; and their facilities are to be increased by an ample supply of water from the Mohawk River through a 10-inch main.

AT the West Albany shops of the New York Central road, Mr. Ortton, the Master Mechanic of the Eastern Division, has just completed a new 8-wheel passenger engine, with 17×24 cylinders and 5 ft. 6 in. drivers, diameter of boiler 50 inches; 201 tubes 2 in. in diameter and 11 ft. 8 in. long; fire box 72 in. long inside, width at top 45 in. and at bottom 34 in., height to crown sheet 73 in.; wheel base of drivers, 8 ft. 6 in., has extended front and steam driver brakes. All the passenger engines of the road and a large nnmber of the through freight engines have the long fronts, which are reported as working very satisfactorily, throwing but few cinders, helping the steaming capacity and economizing fuel. About twelve engines per month are in for thorough repairs. The car shops have just completed four postal cars, 60 feet long inside, with 6-wheel trucks and Paige's 42-in. wheels.

THE magnolia, says the *Northwestern Lumberman*, is a very fine finishing timber, not only on accouut of its inherent beauty, but likewise by reason of the extreme fineness of its grain, and its susceptibility of a very high degree of polish. When it becomes known, as it surely must now, it will be in great requisition for all those uses where a high degree of polish and a close, firm texture are demanded. We see that imitation ebony is becoming much used recently. It would seem that the magnolia is just the species of wood to make imitation ebony from. It seems to fulfill all the requirement, and it grows in inexhaustible quantities in the hummocks of Florida, and can be produced at very low figures. The red or sweet bay is another ornamental wood, which is practically inexhaustible in Florida. It is substantially the same as mahogany, and can be used in the same way and for the same purpose as the Honduras mahogany. In fact we see no reason why it should not receive the appellation of American mahogany.

THE Automatic Spring Motor Car and Carriage Company, of Philadelphia, is having constructed at the Naylor Iron Works a large street car, with its patent spring motor attached. This car will be put upon one of the prominent city railways within a month. When all the springs are wound and the car is in condition to start, the calculation is that there is stored a power capable of propelling a loaded car eight miles with ease, and that this power can be increased or diminished or entirely shut off, as may be desired. The machinery by which the motor is controlled and applied to the propelling of the car is very simple and easily manipulated by the operator, who is upon the platform above. The power is in eight spring shafts, attached to the axle, each shaft having ten coil springs wound arouud it, and each spring is 3 inches wide, $\frac{3}{32}$ of an inch thick and 60 feet long. The experimental car will cost $5,000. A number of engineers who have examined the models and tested the working of the springs have pronounced the success of the motor as assured.

THE Reno (Nev.) *Gazette* says that the Central Pacific Railroad has established a telephone station on the top of Red Mountain. It is a house occupied by two watchmen, who are on the lookout for fires in the snow-sheds. They can take in the whole line of snow-sheds with their natural sight and by the aid of glasses. If they observe a fire in or near the sheds on any part of the line, they immediately notify the station at Cisco by their telephone line, and forthwith the information is sent by telegraph to the railroad station at Sacramento, and in a minute or two the order is sent up the line to Blue Cañon and the Summit, where fire trains are constantly on duty, to proceed to the point where the fire is prevailing. The fire train consists of a locomotive with two tank cars filled with water, which is thrown with hose by a steam force pump. When the fire trains are sent out they have the road, all other trains near the point of danger being stopped. The services of these fire trains are frequently called upon, but they are so prompt in action that they generally subdue the fires before much damage is done. The system is as near perfection as can well be made, so that any great destruction of the sheds is now nearly impossible.

THE car shops of the New York Central road, at East Buffalo, are exclusively engaged with freight-car repairing, the number of cars handled averaging 1,200 a week, more than half of which are owned by other roads. Among the cars now undergoing repairs at these shops are several iron box-cars that have been in service 28 years. They are a portion of an original lot of 600 that were built a long time ago, with a nominal carrying capacity of ten tons. How many survivors there are of the whole number is not known with certainty. The original sills were made of two pieces of plate iron bent and riveted together into the form of a channel bar into which a piece of oak timber was fitted. The siding is composed of pieces about the thickness of No. 11 tank iron, running up and down and riveted together. Some new pieces were being put on to replace a portion of the old siding, which seems to have stood the wear and tear of service remarkably well. Mr. E. A. Olmstead, who was transferred a few years ago from the shops of the Hudson River division in New York, is the Master Car-Builder at East Buffalo. Under his superintendence the capacity of the shops has been utilized to the utmost to meet the current repairs incident to a constantly increasing freight traffic. Among other improvements introduced by him is a wheel press, with four pumps, for pressing off wheels. It can be worked with such rapidity that 30 pairs of wheels can be pressed off the axles in an hour, although it requires of course more men to handle the wheels when the press is worked to its full capacity. The power also is greatly augmented, and when required, a pressure of 180 tons can be brought to bear upon wheels that have been in fires and will not yield to any ordinary pressure. An immense number of journal brasses are made in the brass foundry, all of which are lead-lined, the quantity used on the Division of the road between Buffalo and Syracuse for all cars, home and foreign, amounting to 23 tons per month. The car shops at present employ a force of 550 men, and the tracks which properly constitute the track-yards of the shops measure in the aggregate about 15 miles. It may be said, however, that the great amount of repair work done here is facilitated very much by the quantity of truck irons, etc., furnished from West Albany to these and other shops of the line.

THE Jones Car Manufacturing Co., at Schenectady, is busy upon passenger car work. Since the organization of the company some two years ago, and the enlargement of its shop facilities for the building of passenger cars, this branch of its business has increased so rapidly that the building of street cars has been transferred entirely from Schenectady to West Troy. The company has recently completed 14 passenger coaches for the Louisville, New Orleans & Texas road, and material is being prepared for 20 additional coaches for the same road, which is a new one now in process of construction. The bodies of these cars are 51 ft. long by 9 ft. 7½ in. over all. The inside is paneled between and above the windows with Mexican mahogany, and the wainscoting below windows is matched cherry. The ceilings are of white birch. The floors are of white and yellow pine in two courses laid diagonally. Georgia pine is largely used in the side and roof framing

The doors have drop sashes. The top glass of the windows is 10 × 22 and the bottom glass 24 × 22 in. Each car has 29 reversible seats and one corner seat; the distance between seat centers 2 ft. 10 in., and the backs have mahogany heads. The outside of the cars is painted a dark canary color, with rounded corners handsomely decorated and black relief striping under the windows. The cars have four-wheel trucks and 33-inch iron wheels, weighing not less than 525 lbs. each, also M. C. B. standard axles, French's elliptic springs and Westinghouse air-brakes. The company has also just completed 10 first-class passenger coaches (Chicago & Northwestern standard) for the Chicago, St. Paul, Minneapolis & Omaha road. The bodies are 55 ft. 8 in. long by 9 ft. 11½ in. wide over all. There are 18 windows on each side, top sash 13$\frac{1}{16}$ × 23¾, bottom 26¾ × 23¾ in., blinds of clear white basswood and sashes of mahogany. The clear story has 36 windows, 10⅝ × 23¾ in. The inside finish is St. Domingo mahogany throughout, with the exception of the ceilings, which are three-ply, the face being bird's-eye maple relieved with mahogany moldings. Yellow pine is largely used in the body framing. One noticeable feature in the construction is an upper truss of ⅝ × 1½ in., iron, let into the studding under the windows and extending nearly to the end of the body frame, from which point it runs obliquely down to the sill, where the end is rounded, passes through the sill and is fastened underneath by a bolt and seat casting. The upper deck extends the full length of car, the outside panels are of ¾ in. white-wood and there are nine on a side. The trimmings are bronze and are furnished by the Union Brass Manufacturing Co., of Chicago. Each car is lighted with three center-lamps made by Adams & Westlake. The trucks are six wheel, 33 in. iron, weighing 525 lbs., and pressed on M. C. B. standard axles with 30 tons pressure. French's elliptic springs are used and Westinghouse automatic brakes. Four Wagner sleepers are in the paint shop, and will soon be ready for the track. They are 56 ft. 6 in. long over bodies, have six-wheel trucks and Allen paper wheels. Material is also being prepared for five more sleepers for the Wagner Co., which will be the finest cars of this class ever built. In the erecting shop are some of the first of a lot of 20 passenger coaches for the Savannah, Florida & Western road. The outside body dimensions are 46 ft. 6 in. × 9 ft. 10 in. The framing, including platforms, is of Georgia yellow pine. The inside finish will be in cherry, except doors, which will be of mahogany, and the ceilings which will be decorated oak. There are 15 windows on a side. Mason's tilting seats will be used, and five movable mahogany tables (16×32 in.) provided for each car, to be attached to the car side by racks when not in use. The trimmings are from the Union Brass Mfg Co., and the lamps will be Hicks & Smith's 2-light hurricane center pattern. These cars will also have French's springs, Spear heaters and Westinghouse automatic brakes.

The Benefits of Association as Applied to Master Car Painters.

[Paper read at the Convention of the Master Car-Painters' Association in Baltimore, by R. McKeon, Master Painter New York, Pennsylvania & Ohio Railroad, Kent, Ohio.]

Painting is one of the most necessary branches in the construction and maintenance of railway rolling stock. It stands to-day prominent among its kindred, and its importance is more fully recognized than in times past. It has made steady advancement since the organization of this association, which has been the means of opening up new avenues of research to those who avail themselves of the privileges it has given.

Here the mind can be stored with a better knowledge of the true principles of painting and decorating railway cars, and those who have so faithfully labored to promote the objects set forth at the first meeting held in Boston 14 years ago begin to see the development of new and improved plans and methods, which they have sought to bring forward to practical use, and the various shops throughout the country are looking for still greater improvement in the system and the further perfecting of these methods of working among the craft, as well as reducing the expense of car painting, as this important item in the cost of the car has always received due consideration, and all will admit that the cost of painting a first-class coach to-day is not one-half what it was 15 or 20 years ago, the benefits of association having undoubtedly brought about this saving to the railway companies.

We meet together annually for the purpose of advancing the objects of our association as set forth in the constitution, each freely giving his opinions from a practical knowledge of the questions submitted, consequently each goes forth with clearer ideas of the work devolving upon him in the shop, and he feels well repaid for the time spent in the discussion of subjects which were of the greatest interest to him in his work, helping him through some difficulties which all will encounter, and opening up a clearer way to him in the future, and by these mutual exchanges of ideas every member who desires to make progress in his work receives benefit in one way or another.

How many of us can look back to the sessions held in which we have taken an active part, and some perhaps, who had little to say, but sat quietly listening to the secrets of the trade, brought out by these discussions, for it is only by a free expression, such as takes place during a discussion, that a painter will consent to tell what he knows about the trade, and painters' conventions have been the means of many so-called secrets of the craft being given away without reserve, which has been a benefit to many car painters, and a change in their methods of working has followed, they having discovered wherein they were at fault.

At these annual meetings we have an opportunity of enlarging our field of observation; we see some things through others' eyes, our own being often defective, and we profit by their experience, not only learning from what they have been successful in, but that which is equally instructive and beneficial to us in our shop, what failures they have had in their work. Having given a thorough study to some special branches, they are better prepared to give decided views than those who have not applied themselves to those particular branches, although equal interest may have been taken on some other matter connected with the work, and they have applied themselves to the task of surmounting the difficulty under which they labored.

The principal objects of this association are to draw out the views of car painters, and our aim is to correct our theories, which may be deficient, by comparing methods, and thus become, as it were, partners, ready at all times to give advice to one another. We feel that we are still apprentices, and as such are seeking at every opportunity for the opinion and criticism of practical men, those who are ready to contribute their experience with their modern plans and methods. From the information thus derived we at once become participators in the advantages gained by the study and application of our fellow workmen, and we go on steadily advancing in a knowledge of the principles of painting and acquiring greater perfection in our daily practice.

Frequent association and a mutual exchange of thought seldom fail to exert a valuable influence on the adoption of methods we employ. It gives us a better security as well as a clearer knowledge of the practical working and management of the paint shop with its daily duties. These annual meetings strengthen our resolves and elevate our aims. We are encouraged and take greater care and watchfulness in doing our work, making greater efforts to succeed, our progress becoming still more effective, and we are advancing the painter's art and the interests of the companies who employ us.

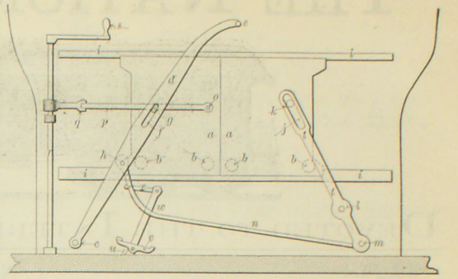
The accumulation of knowledge is made up by a close observance of little matters and the difficulties pertaining to the trade, which we all have to contend with more or less. These should be noted down in our memory as they occur, so that a careful investigation and study may be made, and the cause of the trouble, if possible, arrived at. An inquiry made at our meetings may bring about a remedy. Singly we are able to make but little advance in car painting, but when we work with one another for the purpose of making improvements we can do no more. A man's worth or value is greater where he is privileged to consult and compare his methods and plans with others in the same line of business. Association has all the advantages, and without it we have none. Here we combine together and give expression to our ideas and opinions, without holding back any thing which we think may be of benefit or to the advantage and greater success of any member in the mixing and application of the pigments employed, and in the management of his shop.

In harmoniously working together as an organization, we have the united efforts of every member; we can therefore do a great amount of good as the investigations and support of many, in any cause, make a complete and permanent organization. Ordinary occasions often furnish us with opportunity for improvement, and it is a failing, perhaps, among car painters that they are always ready to take advantage. Nothing in their line escapes their notice. Any thing new about a car in the way of finish and decoration is closely inspected. This is as it should be, for a steady application to the work in hand, with a persevering and diligent improvement of the opportunities offered, will lead to grand results.

There are a few car painters (and we meet them occasionally) that are opposed to association on the ground that we give too much publicity to our discussions. Therefore they stand off and refuse to unite with us. These generally know more about car painting than the whole body of men in a convention. They hold fast to what little they have acquired in their own shop, never looking for any thing beyond its walls. Watch their movements and you will find that in many cases the same old methods are still pursued as handed down from their predecessors, the very liberal application of oil, lead, yellow ochre and rubbing varnish, is the base of their work, and modern methods which reduce the expense of car painting at least one-third are of no weight with them.

We also have another class who advocate secret sessions. Let the doors be closed to the uninitiated, speak not above a whisper, for some one, perhaps an editor of a railway journal, will hear you. You may divulge some great secret that will ruin the professional car painter. But not so with us; we believe that there is nothing lost by giving public expression to our opinions, and here in this association we have wide awake and progressive men who are never afraid to speak freely, and even allow the publication of their views in the painters' and railway publications of the country. There is no loss by spreading broadcast your ideas, for we are all very far from perfection, and we should court criticism as it is a good way of learning, and in this way, we call forth the views of others, which we are always glad to hear, and if contrary to our own, they are listened to, or read, with increased interest by the true advocate of progression.

Now while some progress has been made since this organization was effected, there is yet room for more to be accomplished, and many needed improvements can be made in car painting. We have by no means attained to that perfection which we should be able to show here to-day, and you must acknowledge that our meetings have not resulted in the success which many of us have sought for, nor perhaps, can we point to any organization of railway mechanics, however progressive in its workings, that have reached the standard of excellence which they had aimed at, nor should we look forward with the expectation of reaching that perfection, especially while there is such indifference shown by committees in the preparation of suitable subjects for our annual discussions. More time should be employed also by committees who have the subjects under consideration, than is generally the case. Some preparation is necessary, and facts should be gathered on all subjects introduced, to give weight to the arguments advanced. Let us go deeper, put our methods and plans to the test, compare them with others, then make a report at these annual meetings. It is only by this means that we can reach a satisfactory conclusion on any matter connected with the art of car painting.



An Improved Locomotive Fire-Door.

The engraving shows the construction and operation of a locomotive fire-door, designed by Mr. James Boon, Ass't Superintendent of Motive Power of the Chicago & Northwestern Railway.

The doors *a a* are made of ¼-inch iron, double, and run on rollers *b b b b* between the two thicknesses, the rollers resting on the guide or slide *i*. A lever *d*, pivoted to the boiler at *c* and having a slot *f* in which runs the pin *g*, fastened to the left-hand door, is connected at *h* by a rod *n* to another lever *t*, at *m*. This last-named lever is pivoted to the boiler head at *l*, and is provided with a slot *j* at its top for the pin *k*, which is fastened to the right-hand door. By moving the handle *e* towards the left, both doors wil open to the left and right respectively. An upright rod *r*, with a handle *s*, is connected with the left-hand door by a short crank-arm *q* and rod *p* at the point *o*, for the convenience of the fireman when he is on his seat. When firing he uses either the handle *e* or *s* as is most convenient. Another use of the lever *d* is, when the doors are opened to cool down the engine, it will slowly close them by its overhanging weight, the movement of the doors in closing being so slow as to be almost imperceptible.

It would seem to be a desirable addition to the completeness of the arrangement, if a pedal *v* were mounted on a point *u* to the foot-board, moving its shaft-arm *w*, which by means of the rod *x* is connected to the rod *n*, when the fireman by placing his left foot on the pedal could with the requisite motion and pressure, open or close the doors at will without losing his hold on the shovel to handle the lever *e*. As is well known, a fireman with the ordinary door is compelled to let go his shovel twice for each shovelful of coal, once to open and once to shut the door. By the use of the pedal, as shown, this would be done away with, and he could put twice the quantity of coal into the fire in a given time, a very desirable thing when an engine is pulling heavy and every second the door is open causes the gauge-finger to back down.

Railway Standard Time.

The uniform system of standard time, which will soon be adopted by all the railways of the United States and Canada, is a very simple one. It provides for five standards which differ from each other exactly one hour. The most eastern standard is that of the 60th meridian, and will govern in Nova Scotia and the extreme eastern provinces of Canada. Next is Eastern time, four minutes slower than New York time, which is to govern the lines between the New England coast and as far west as Cleveland. Then will come Central time, one minute faster than St. Louis time, which will govern the lines in the territory for 450 miles on each side of the 90th meridian, which is a few miles east of St. Louis. The next standard is Mountain time, nearly corresponding with Denver time, which also will govern in a district 450 miles on each side of the Denver meridian. Lastly will be the Pacific time, which will be a trifle faster than that of San Francisco.

We will thus have our railways operated under a system of standard time which will be exact. The changes will be equal, and in no locality will local time differ more than half an hour from railway time. The annoyance and confusion resulting from the present plan of each road running on its own standard will be avoided.

The next step of progress will be the adoption of the twenty-four-hour style of dividing the day, so that we will no longer hear of A. M. or P. M. During the first half of the day, from midnight to noon, there will be no change, but from noon to midnight the hours will be numbered from 13 to 24, and midnight will be at 24 o'clock. This change may be more of a revolution than that involved in the adoption of a uniform system of standard time, but it is sure to come.—*Railway Register.*

A very peculiar arrangement is being put on the track by the Philadelphia & Reading Railroad Company, near Bound Brook, at the point where that railroad crosses the Lehigh Valley Road. When a train strikes a point 2,700 feet from the crossing of the two roads an electric bell is set in motion, and if an engineer persists in running, notwithstanding that a danger signal is displayed, the crossing tender can use an automatic arrangement by which the train may be run on a siding that leads into a field and be ditched.

The Comparative Economy of Consolidation, Mogul and Eight-Wheel Engines in Freight Traffic.

A prominent master mechanic and car-builder, who is connected with a road upon which consolidation, mogul and ordinary 8-wheel engines are used in freight-work, recently said to us that he was sure that on a level road like his, consolidation engines were the most expensive that could be used. As to moguls he was a little doubtful, but he felt sure that 8-wheel engines were the best for that kind of work. Upon figuring it out, he was convinced that there was a saving in the pay of engineers and firemen by using a consolidation or mogul in place of two 8-wheel engines, but an experience of eight years had changed his views, substantially for the following reasons:

The cost of repairs to the two types of heavy engines is from 1½ to 2½ cents per mile more than to the 8-wheel engines. The repairs to freight car draw-bars on trains hauled by the heavy engines were 50 per cent. more, and the consolidation engines cost from 1½ to 2½ cents per mile more for fuel. These last named engines would, it is true, haul nearly twice as many cars as an 8-wheel engine, but owing to a lack of business they frequently went over the road with only half their proper load. The extra cost of fuel and repairs to the drawing attachments of cars would pay for another engineer and fireman, and also the interest on the extra cost of the two 8-wheel engines. The heavy consolidation and moguls are, furthermore, severe on the track; and in one instance on a certain road a $40,000 wreck was caused by a heavy mogul displacing the rails so as to send a passenger train which followed into the ditch, killing seven or eight persons. "So, on the whole," said the master mechanic above referred to, "I prefer an 8-wheel engine for freight on a comparatively level road and where there is much fluctuation in the amount of traffic."

This seems to be the opinion of a great many railroad men, and it is doubtless well founded. It is clear that while the size, weight and power of engines have rapidly increased, there has been no increase in the strength of the framing of freight cars, and on many roads the carrying capacity of cars has been increased from three to five tons, solely by the use of the stencil-plate and paint brush. Thus two important factors have been at work to shorten the lives of freight cars and increase the expense of keeping them up. How much more frequently than heretofore do we see cars on side tracks with their ends pulled out, and yet these cars are repaired in the same style that they were built and new cars are built similarly with no attempt to bring the strength of the car up in the same proportion that the tractive force of the locomotives has been increased. Where such heavy engines as are referred to are used, it is found necessary to keep their speed down to 10 or 12 miles per hour in order to save the track, especially on curves. Section bosses are almost unanimous in their dislike of the consolidation and mogul types of engines. They say the rails are too light for them, and that they cause distorted curves, bad joints and spreading of track. Locomotive engineers also dislike to run big engines on account of hot pins and a loss of time.

On the other hand, we find many of the principal railway companies using mogul and consolidation engines exclusively for freight work, while other roads just as large and important will use nothing but 8-wheel engines for all service. Experiments have been made to test the amount of friction of the 8-wheel, 10-wheel (six drivers connected), and consolidation types of engines in passing round curves, by pulling the dead engines behind a dynamometer car. The results showed that the 10-wheel engine had less friction on curves than the 8-wheel or consolidation engines, the friction for the 8-wheel engine being 1,963 pounds, for the 10-wheel engine 1,750 pounds, and for the consolidation 1,850 pounds. It was contended, however, that the *hauling* of an engine round a curve did not represent the same engine propelling itself. If the front tire of the mogul or the two front tires of the consolidation are "blind," or without flanges, it is difficult to see why they would not go round as short a curve as the ordinary 8-wheel engine, assuming that the driving wheel centres of the 8-wheel engine and the two back pairs of drivers of the other types are the same, and the total wheel base the same also. But the distinctive features of these heavy engines is probably their *weight*, and that they injure curves by striking them at too great a speed, the tendency of the engine being to keep a straight line or path, which must be overcome by the rails, and it is evidently more injurious to change the path of a consolidation, than that of an 8-wheel engine weighing several tons less.

It has long been believed that 12,000 pounds per driving wheel is the limit of the weight to which it should be subjected, and that anything more this would result in crushing the face of the rail, or practically sinking into the rail. There are, however, several engines now running in this country with 17,000 and 18,000 pounds per driver, and no difference in the wear of the tire or rail is noticed, and in some cases it is claimed that these heavily weighted wheels show less wear on the tires than some of the lighter weighted wheels. One case is on record of a shifting engine having 22,000 pounds on each driver, with nothing noticeable in the way of bad results. Many 18×24 inch cylinder moguls have from 50,000 to 55,000 pounds on the six drivers, but it appears that so far as the tires or rails are concerned, we could put 4×18,000 or 72,000 pounds on the four drivers of an 8-wheel engine, and the necessity of six drivers at once disappears, so far as the supposed injurious effect of exceeding 12,000 pounds per driver, is concerned. But it is not an easy matter to get the 72,000 pounds to put on the drivers of an 8-wheel engine unless a portion of the weight of the tender is utilized, and this is done on several roads. It is claimed by some master mechanics that this arrangement throws an excessive weight on the back pair of drivers. In practice this objection is never raised, and the only change necessary that we have seen has been the adding of a leaf to the back springs, although in many cases this is not done. If any serious objections should arise to unequal distribution of weight, it would be a simple matter to transfer the *entire* weight on the drivers, to them through the equalizer, when an equality of weight on the wheels would necessarily result. In many consolidation engines we have seen two or more tons difference in weight on different pairs of drivers with no bad results.

It thus appears that the adhesion of the 8-wheel engine can be brought up to that of the ordinary mogul, and if this is done, the former is equally powerful with the same cylinders. Twelve miles per hour being the limit of speed of consolidation and mogul engines on our principal roads, they exhibit at this speed a distinctiveness, both as respects themselves and the curves of track, which is correctly appreciated by railway managers generally. However, if the weight on the four drivers of an 8-wheel engine is made equal to that ordinarily used on the six drivers of a mogul, it is not clear but that the 8-wheel engine would be as distinctive on the track and curves as the mogul. The *cost* of the 8-wheel engine would, however, be much less than that of the mogul. Prof. Dudley's experiments have shown that 18 miles per hour is more economical than 10 or 12, so far as fuel is concerned, while the running of fruit trains on the Cincinnati, New Orleans & Texas Pacific road, at a speed of 25 miles per hour, has shown no increase of repairs to the cars over the ordinary freight train speed of 12 miles per hour. It therefore looks as if the 8-wheel engine, at a speed of 18 miles per hour, is the cheapest type of engine, all things considered, that is in use; for this engine is cheaper at first cost, costs less per mile run for fuel and repairs, it can run at higher speeds with less injury to itself and track, and its adhesion and traction can be, and has been, made equal to the ordinary mogul. It is, of course, true that the same means which make the 8-wheel engine equal in adhesion to the mogul, will, if applied to the mogul, place it proportionately in advance of the 8-wheel, but until the strength of freight cars is brought up considerably, a more powerful motor is not needed. In fact, many railway officials already think the motor is now too far in advance of the freight car, and are in favor of smaller trains at higher speeds with lighter engines. In this connection we will refer to some experiments made a few years ago on the Boston & Albany road to determine the claimed advantages of the mogul over the ordinary 8-wheel engine. The mogul was named "Brown," and the 8-wheel engines "Virginia" and "Adirondack." We quote from the report:

"The cylinders of all were the same size, 18×26, the driving wheels were also the same diameter, 4 ft. 6 in., except those of the Virginia, which were 5 ft. The boilers differed in these particulars: The furnace of the Brown was 65¾ in. long., 35 in. wide and 56½ in. deep; tubes, 162, 2-in. diam., 11 ft. 4 in. long. Those of the Adirondack and Virginia, 54 in. long, 41½ in. wide and 51½ in. deep; tubes, 162, 2-in. diam. and 11 ft. 10 in. long. So it will be seen that as to area of grate there were 60 square inches difference in favor of the Brown, and 42 square feet in flues in favor of the Virginia and Adirondack. The weight of the Brown is 73,600 pounds, 55,200 pounds on the driving wheels. The Virginia and Adirondack 67,150 pounds, and 43,000 pounds on the drivers. On the first trial between the Brown and Virginia, five round trips were made between Greenbush and Pittsfield, 105 full loaded line cars were taken east and 175 (a large number of which were empty) were taken west by each engine. The fuel consumed by the Brown was 30,850 pounds of coal, costing $107.97; by the Virginia, 23,924 pounds, costing $83.73. On the second trial between the Brown and the Adirondack, nine round trips were made between Springfield and Boston, 224 cars, less 24 from Worcester to Boston, were taken east, and 320, less five from Worcester to Springfield, west by the Brown; and 223 east, and 307, less three from Worcester to Springfield, west by the Adirondack. The fuel consumed by the Brown was 106,150 pounds, costing $371, by the Adirondack, 83,090 pounds, costing $290. The average time upon the trial was (going east) to Charlton Summit 1 hour and 4 minutes, each trip in favor of the Adirondack; and from Boston to same summit, 1 hour and 39 minutes in favor of the same engine. On the third trial between the same engines 14 round trips were made between Greenbush and Pittsfield; 317 full loaded cars were taken east, and 387 west by the Brown, 317 east and 372 west by the Adirondack. The fuel consumed was 86,148 pounds of coal by the Brown, costing $301.54, and 69,676 pounds, costing $226.36, by the Adirondack. Thus it will be seen that in 37 days' trial the mogul burnt 225,148 pounds of coal, costing $790.54; Springfield engines 176,690 pounds, costing $600.11. In favor of the latter 48,458 pounds and $190.43."

It therefore appears that the preference of some railway officials for 8-wheel engines is well founded, and especially is this true when the traffic is such that full loads cannot be provided for the heavy engines. On a road we have in mind, the load for an 18 × 24 in. mogul is 35 loaded cars, while a 17 × 24 8-wheel engine is rated as 30 cars. At least two-thirds of the time on this road, the traffic varies so that the moguls are not loaded with over 25 loaded cars, or less than the maximum load of the 8-wheel engine. It is stated that the repairs and fuel of the moguls on this road will average two cents each for each item per mile more than the 8-wheel engine. The length of the road in operation is 140 miles, and at an expense of four cents per mile in excess of the 8-wheel engine we have an expense of $11.20 more per round trips than the 8-wheel engine would perform the same work for under the conditions we name (that of two light loads an account of fluctuations in the traffic), which conditions are of very frequent occurrence.

Among automatic stationary engine builders there is no source recognized so prolific in bad economy or big coal bills, as too light loads, and while some of the reasons differ for the same loss in the locomotive, many of them are the same. It would therefore be prudent for railway officials to be sure of the *big* loads at all times and before buying the mogul, but unless the big loads can be counted on at all times, the mogul is not what you want. Many railway officials have been carried away with the claimed economy of the mogul and heavier engines, and we have a general manager in mind now, who has turned his entire machine shop resources into building moguls. Quite a number have been built and they came in very handy when the road was pressed with a rush of freight. For several months past, however, the business with this road has been so light that the moguls could not get a heavier train than about 20 cars, and as before stated, they are a heavy expense with light loads, for they are just as distructive on the track with twenty as with forty cars behind them, and they are burning proportionately the same amount of extra fuel, and keeping in motion the same amount of extra machinery with the light loads as with the heavy or proper loads.

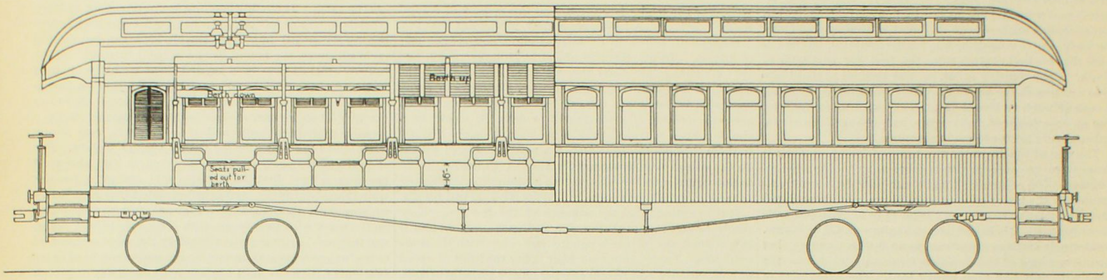
In this connection a word or two about long runs may not be out of place. A few years ago this system was tried quite extensively, and in the majority of cases, with such results as to lead to dropping it. At present we know of but one or two roads that are using it, and they are doing so with pre-eminent success. This would lead us to infer that the long run or continuous service system is the right one, and that its want of success is the fault of the roads rather than of the system itself. It would require a great deal of time to make this system a success, from the fact that engineers do not take to it kindly, and it requires time for an engineer to become familiar with the different engines. In connection with long runs the contract or premium system would prove of great value. The advantages of the long system are, as is well known, that the expense of fuel and attendance for firing up is saved, the force of wipers is greatly reduced, and with no apparent bad results, as the roads using this system find the repairs per mile the same whether the engine runs 3,000 or 6,000 miles per month. Division round-houses are dispensed with to a great extent. The oil account is less per mile, as the oil lost by dripping when an engine is standing is done away with. The injury to the boiler from the frequent contraction and expansion when the engine is cooled off, is prevented. From one-third to one half of the engines can be dispensed with, and this would be a very important item on a new road with limited means. Improvements are constantly being made in locomotives, their size is increasing, and as the continuous service or long run system shortens the life of an engine, or rather the engine being kept constantly at work, wears out quicker. A road can take advantage of improvements and buy or build them with their new engines. It frequently happens that a road for want of this system will have a lot of 14, 15 or 16-inch cylinder engines in service, half worn out, which they are desirous of selling to make room for larger engines. These engines, from being kept at work but half the time, have grown too small for the march of improvements and are in many cases in the way.

Suppose a new road intends to use the old or present system, and will run its engines 3,000 miles per month, and that 100 engines will be required to do the work. If each of them cost $9,000 the total cost will be $900,000. As at the mileage of 3,000 miles per month the engine will be idle about one-half the time, we have $900,000 idle for six months of the year. This means a loss in interest (7 per cent.) on the investment, of $31,500, or a total, not regarding depreciation, etc., of $931,500 for one year. If the long run system be adopted, or the engines run 6,000 miles per month, it is evident that if no break-downs occur, that fifty engines will perform the same mileage as the 100 engines. But as break-downs, etc., will occur, we will allow 16 extra engines, or a total of 66 engines, which, at $9,000 each, will cost $594,000. It was found on a large road which tried the long run system for a short time, that the total expenses per mile were increased ¼ of 1 per cent. per mile, although it seemed plain in view of the success some other roads have had with the system, that the expenses could have been made equal, or even less, if the system had been continued. But assuming that our supposed road has the same increase, then if our fifty engines were run 6,000 miles each per month, or a total of 3,600,000 per year, and each mile costs ⅓ of one cent more than under the old system, we have an expense from this of $12,000, which, added to the cost of our engines gives us $606,000 for the long-run system as against $931,000 for the old or present system, or a saving of $325,000 in favor of the long-run system. If the road were 200 miles long, under the present system a round-house would be needed at the middle of the line, while by the long-run system the engine would run clear through, changing engineers at the center of the road. It will thus be seen that there are many advantages connected with this system.

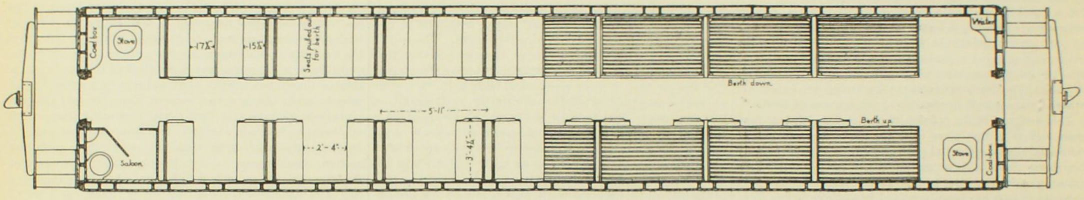
THE Lafayette (Ind.) Car Works have taken a contract to build 200 34-foot freight cars for the Rochester & Pittsburg road.

EMIGRANT SLEEPING CAR—UNION PACIFIC RAILROAD.

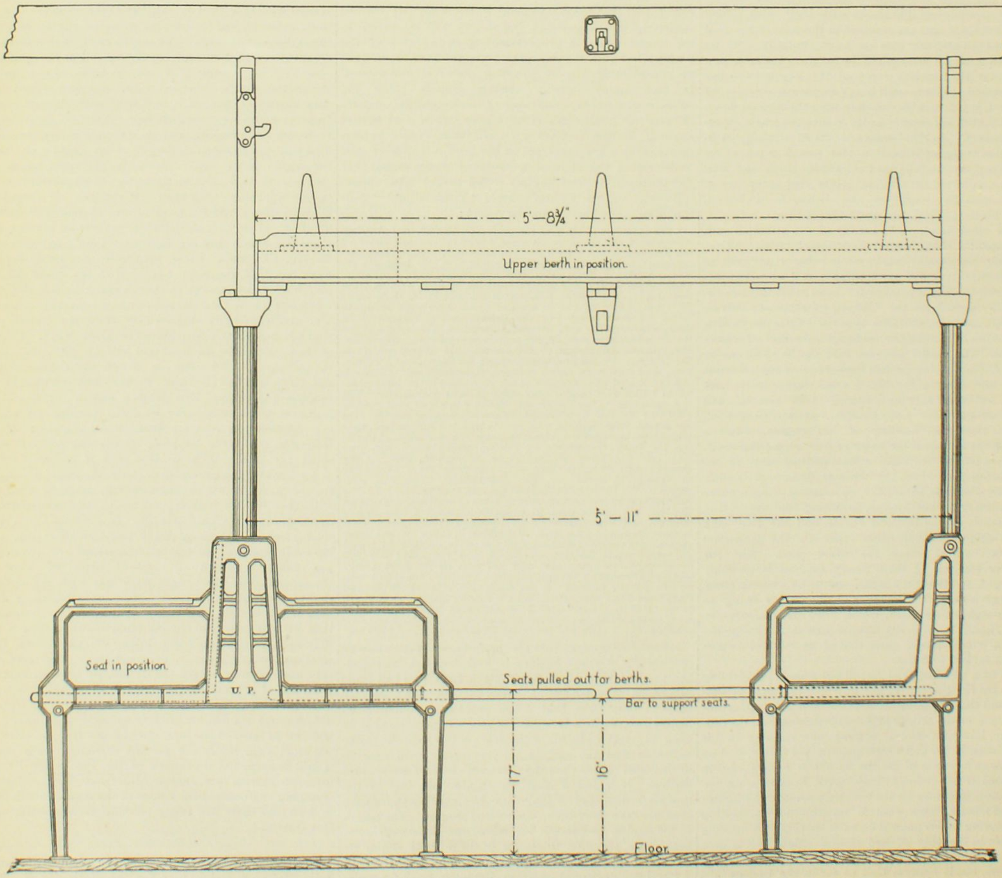
Designed by I. H. Congdon, Superintendent of Motive Power and Car Department.



Sectional and Side Elevation.

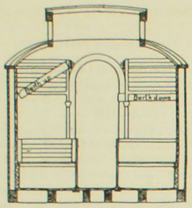


Plan.



Side Elevation of Berths and Seats.

THE shops of the New York, Lake Erie & Western road, at Buffalo, are busy with current repairs. A daily report of the number and kind of cars repaired, and also the number and kind awaiting repairs, is made by the foreman of the shops to the Superintendent of Motive Power. The

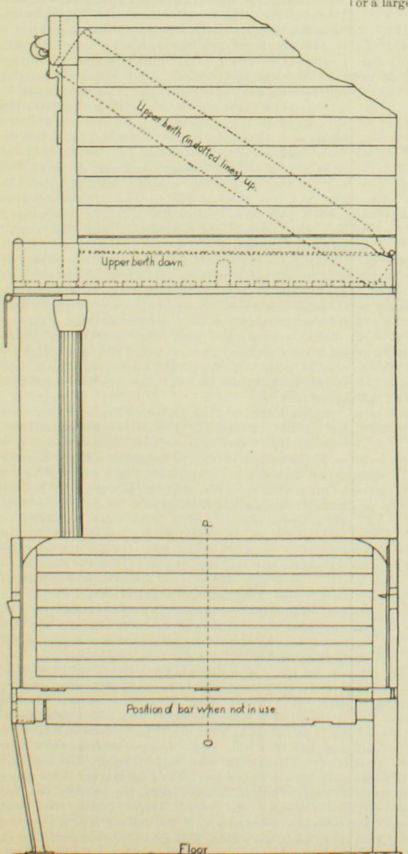


Section of Car Body.

repairs made are classified as follows: 1. Cars entirely rebuilt. 2. From $100 to $250 outlay. 3. From $50 to $100. 4. From $10 to $50. 5. Under $10. Six of these reports for the same number of consecutive days, during which no passenger train cars were repaired, show the following result, which is a fair average of the repair work that is now being done at these shops:

Cars.	Second class.	Third class.	Fourth class.	Fifth class.	Total.
Box	....	....	28	358	386
Stock	....	....	33	585	618
Flat and gondola	1	1	29	387	418
Oil	....	....	28	378	406
Coal	....	....	21	318	339
Caboose	1	....	29	309	339
Grand total	2	1	168	2,335	2,506
Average number per day					417

During the month of September 33 new box cars and 2 baggage cars were built. Double dead-blocks with iron face-plates are used on freight cars, the distance between inside of blocks being 12 inches. These are bolted to a center block 35 inches in length, and is the standard system of the road, approved by long experience as being the best arrangement, both for the protection of the cars and for the safety of the men who do the coupling.



End Elevation of Seats and Berths.

Improved Rapid Method of Copying Drawings, Manuscripts, Etc.

The common method of copying drawings by contact with the blue process or sensitive silver paper, which requires an exposure to the sun of from fifteen minutes to half an hour, seems likely to be superseded to some extent by the introduction of improved gelatine bromide of silver paper.

Gelatine sensitive paper has been difficult to prepare, but by means of recent improvements the manufacturers are now able to furnish it in large sheets, uniformly coated, so that its use in various branches of the arts promises to be extensive.

Architects, draughtsmen, engineers and others who wish to make duplicate copies of their drawings are, by the usual processes, obliged to first make a tracing upon transparent linen cloth, so that the light may easily affect the sensitive paper. Much extra time is lost and expense incurred. By means of the gelatine sensitive paper any ordinary thick card board drawing can be copied in a few seconds, either by diffused day light or gas or lamp light. The copy will be an exact reproduction of the original, showing the letters or figures non reversed.

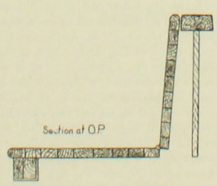
If it is desired to make a copy in the day time, any dark closet will answer, where all white light is excluded. The tools required are an ordinary photograph printing frame and a red lantern or lamp.

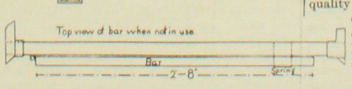
The sensitive gelatine paper is cut to the size required, and laid with the sensitive side upward upon the face of the drawing, and pressed thereon in the usual manner by springs at the back of the frame, which is then carried to the window and exposed with the glass side outward from two to five seconds to the light; the exposure varying according to the thickness of the drawing. If gas or lamp light is used at night, from 20 to 30 minutes' exposure is sufficient.

The frame is returned to the dark closet, the exposed sheet is removed to a dark box, and other duplicates of the drawing can be made in the same way. It is thus possible to make from ten to twenty copies of one thick drawing in the same time that it usually takes to obtain one copy of a transparent tracing by the ordinary blue process.

The treatment of the exposed sheets is quite simple; all that is necessary is to provide from three to four large pans or a large sink divided into partitions. The development of the exposed sheets can be carried on at night or at any convenient time, but a red light only must be used. The paper is first passed through a dish or pan of water, and then immersed in a solution, face upward, composed of eight parts of a saturated solution of oxalate of potash to one part of a saturated solution of sulphide of iron, enough to cover the face of the paper. Both chemicals are easily obtained at a druggist's. The latent image soon appears, and a beautiful copy of the drawing is obtained, black where the original was white, with clear white lines to represent the white lines of the drawing. With one solution from six to eight copies can be developed right after the other. After development the print is dipped in a dish of clear water for a minute, and finally immersed for three minutes in the final or fixing solution, composed of one part of hyposulphite of soda dissolved in six parts of water. It is then removed to a last dish of water face downward, soaked for a few minutes, then hung up to dry; when dry it is ready for use. Instead of a drawing, manuscript can be placed in the printing frame and exposed as described. All the water marks or peculiarities of the grain of the paper will be faithfully reproduced. The advantages of this process are self-evident.

Intricate mechanical drawings can be so rapidly copied, that working copies can be quickly delivered. By this process, original manuscripts, certificates, and documents of every kind can be rapidly copied, every detail being brought out, the original paper serving as the negative, the copy being of the exact size as the original.—*Scientific American.*





Dining Cars.

No innovation ever achieved more immediate and decided popularity than the introduction of dining cars. The uninviting, indigestible nature of the so-called refreshments offered at railway eating stations had long been a by-word. In most sections of the country it was practically impossible to procure a respectable meal or lunch while traveling. Railway officials had wrestled with the subject in vain. Recognizing the fact that the heart of the railway traveler is most susceptible to influences reaching it by way of the stomach, they made repeated and continued endeavors to improve the fare offered during the "twenty minutes for dinner" stops. With a few notable exceptions, the result was not encouraging, and the traveling public continued to nauseate and contract dyspepsia three times a day. It does so still on a majority of the railway lines of the country, and as the gorged but dissatisfied and bilious crowd returns to the train it vigorously curses the road which is slow to adopt the dining-car system.

As far as our observation extends the popularity of the dining-car is not due to any saving in time resulting from its use. Practically that is a very small matter, however well it may look theoretically. They do not lessen the time required for a journey—or if they do, the same end could more easily be attained in other ways. The real advantage lies in placing the "eating department" directly under the control of the railway officials, who as a rule know what the proper thing is in that line. Their ideas of a well-cooked meal, becomingly served, average high.

In introducing the dining-car system great care was taken to provide a really good service. The public speedily learned that they were assured of good meals on dining-car—meals which in fact left little to be desired. We have often eaten meals on these cars when in regular service, which were fully equal in every respect to those offered by first-class metropolitan hotels. It was a new luxury in travel, and the faces of those to whom it was a new experience fairly beamed with satisfaction.

"A new broom sweeps clean." A new dining car, with new dishes, etc., looks very inviting, and, for a time at least, very neat. Care has been exercised in engaging cooks and waiters, and every thing is comparatively unexceptionable. But it does not follow that because it starts right it will continue so. Dining-car service is a thing that needs constant watching. The natural tendency is for it to degenerate with age. If it is allowed to take this course it will rapidly lose its popularity. Travelers will not endure a badly cooked meal, poorly served on dirty dishes and ragged linen—even if it is offered in a "superb dining car."

Nor is this premonition based upon future possibilities only. The writer has had some experience lately, which leads to the conclusion that the dining car of earlier day may soon become a tradition of the past. He does no infer that there is a general deterioration; such is certainly not the case as yet. But there are dining cars and dining cars. The expectations raised by a gorgeous and extensive bill of fare have more than once proved sadly disappointing. When the meats and vegetables all have the flavor of having been cooked in the same pot, and all alike fairly swim in grease; when an unkempt waiter soaks the first joint of his thumb in your soup and polishes your plate on a cloth which bears evidence of long previous duty; when the pastry is infinitesimal in size but infinite in weight and suggestive of nightmare; the fruit knotty and decayed; the raisins and figs the remnants left by worms—there is small consolation in a gorgeous bill of fare, which you are invited to take with you "as a souvenir." Souvenir! Can we ever forget it? Will that dream of vile cookery and despicable service ever cease to haunt us? Was ever heroic appetite so appalled? And can it be that this was on one of "the celebrated dining cars?" Even so; and the genial railroad official doubtless sat at his desk in his office, and as he glanced approvingly over the handsome bill of fare, wondered inwardly if the great traveling public appreciated the efforts which his road made that they might "fare sumptuously every day."

Of course, this sort of thing is not necessary. It is not just as easy to do things right, but they can be done right if constant supervision is exercised. On the majority of lines running dining cars such care is evidently exercised still. May it always continue. One suggestion offers itself in this connection: The bill of fare usually offered at dinner is too extensive. It can be cut down one-half and give as good or better satisfaction. Fewer dishes can be prepared better and served better. The general public may like a "great spread," but it will soon be educated into preferring quality to variety. The class who use dining cars are generally not slow to appreciate the really good things of life. Gastronomy is not to them a wholly unknown science; and in this, as in nearly every other department of life, the railway may become a great educator.—*Elevated Railway Journal.*

THE Buffalo Car Manufacturing Co. are building 600 freight cars of various classes for the Delaware, Lackawanna & Western road, and 200 20-ton hopper-bottom coal cars for the Rochester & Pittsburgh. The company have been putting in some new machinery, and have erected two new buildings for construction purposes.

Communications.

English Railway Rolling Stock.

London, Oct. 20, 1883.

To the Editor of the National Car-Builder:

Freight engines on many English lines are now being made with $17\frac{1}{2}$ or 18 × 26 in. cylinders instead of the usual standard 17 × 24, and 60 in. wheels. Smaller wheels, 54 in. and 58 in., are also coming into vogue, thus increasing the tractive power from 117 lbs. to 145 lbs. per lb. average pressure per square inch on the pistons. Six coupled wheels with inside inclined cylinders are still almost universally used, and the example of one line, the Great Eastern, in introducing Moguls has not been followed. These engines have 19 × 26 in. outside level cylinders and 58 in. drivers, and weigh 105,840 lbs. in working order. They burn 56 lbs. of coal per mile, and take a train of forty coal cars and a 22,400 lbs. weighted caboose or brake van up a gradient of 39 ft. per mile. The net weight of coal is about 670,000 lbs. The high charges in England for the transport of freight, in comparison with the low rates prevailing in America, have excited much attention, and efforts are being made to increase the average train load; but as English railway accounts do not show the ton mileage, it is impossible to ascertain whether the larger engines haul proportionally heavier trains. It is curious that the two largest lines, owning nearly 4,000 locomotives, the London & Northwestern and Great Western, still use the lightest freight engines in England, weighing only about 70,000 lbs., 90,000 lbs. being a common weight on other lines.

The Great Western Railway (7 ft. gauge) first introduced express trains running long distances without stopping. Their schedule time in 1845 was $4\frac{1}{2}$ hours between London and Exeter, 194 miles. In 1881 this was further reduced to 4 hours 14 minutes, but the trains had, meanwhile, grown from five six-wheeled cars (without trucks), weighing 22,000 lbs. each, to eight cars, each weighing 43,000 lbs., provided with deck roofs, and two four-wheeled trucks with 48-in wheels. These cars have iron sills and trucks, and are divided into compartments, with side doors, in the fashion usual in most parts of Europe. The third class are padded on the backs and seats, which are covered with brown rep, the roof-boards are painted white, and the rest of the woodwork is grained. The first-class cars have loose cushions, about 4 inches thick and 24 inches square, stuffed with curled horse-hair and tufted; one side and edge of the cushion is covered with superfine blue West of England cloth, and the other side and edge with blue morocco. Passengers generally prefer to sit on the cloth side in cold weather and on the leather in warm. These cushions rest on canvas stretched tightly over sofa springs, twelve or sixteen to the cushion. The head-lining is of thin oil cloth of a very quiet pattern—small blue stars upon a white ground. It is cheap and durable and can be revarnished. The outside of the roof is covered with stout oil cloth full $\frac{1}{8}$ in. thick, bedded on a thick coat of freshly applied white lead. An additional coat of white lead is then applied outside, making a very tight water-proof roof. The first class in England is the equivalent of the Pullman or parlor car in America, though of course the seats, etc., are differently arranged. About eighty-three per cent. of the total number of passengers travel third class, the fare for which is 2 cents per mile, about half the usual rate for first class. The number of second-class passengers is rapidly decreasing, as first and third class cars are run on all trains.

On many English lines the old style of passenger car, with four or six wheels arranged in a rigid wheel-base, with some side play, are being superseded on the fast trains by cars mounted on two four-wheeled trucks with 42 in. wheels, the bodies being 40 to 48 ft. long in compartments with side doors and no end platforms. Some six-wheeled trucks are in use on the Midland, but though the motion is perfection, the extra weight is objectionable, and that line has returned to four-wheeled trucks and shorter cars.

N.

Some Practical Reasons for not Increasing the Capacity of Freight Cars.

To the Editor of the National Car Builder:

I have read with much interest a number of articles on the subject of increasing the capacity of freight cars, which have appeared from time to time in the Car-Builder.

There are a few points which I think have not been considered by your correspondents (or if they have been alluded to I do not recollect it), but it seems to me that they have a very important bearing on the subject.

In the first place, there is a very large class of freight which is so light in proportion to its bulk that it is impossible to load one of the present 20-ton cars with it up to the full capacity of the car. If cars of still greater carrying capacity were in use, they would be no better for the transportation of this light and bulky freight than the cars already in use, and the additional cost and weight of the heavier cars would entail an actual loss on all mileage made by them when not loaded to their full capacity, as compared with the same service made by lighter and cheaper cars. It may be contended that the cars could be increased in length beyond 34 ft., but this would involve a much more expensive system of framing than that now in use, in addition to the extra weight and expense of suitable wheels, axles and trucks.

The objections already raised apply only to the use of cars of more than 20 tons capacity in through service when loaded with light and bulky freight. In local service there would be other objections, as the necessity of loading cars in local trains in such a way that the contents are easily accessible would prevent their ever being loaded to near their full capacity when in such service, even though the freight carried might be of such a nature as would allow of a full load if destined for one point. Then again a large amount even of through freight is sent in lots which constitute a load or nearly a load for the present cars, but would not do so for heavier ones. This applies to all cases when despatch is necessary, and particularly when cars are loaded by, or consigned to, manufacturing establishments outside of the large cities. If the proposed heavy cars could be kept in special service, such as the transportation of coal and metals, they would no doubt prove a means of economy, but every practical railroad man is aware of the difficulty of keeping a car on one road, to say nothing of the difficulty of limiting its use to one class of freight. Several of our trunk lines have built cars especially for carrying grain, and have attempted to confine their use to that service, but they are habitually used for all kinds of freight and in local as well as through service.

There is no doubt that the increase in carrying capacity of freight cars from 10 up to 15 and 20 tons has been a great improvement, and while, as I have said before, the use of cars of still greater capacity, with improved draw gear and proper brakes, would in theory be still another step in advance, the practical objections I have suggested seem worthy of consideration.

T.

Fast Trains in England and the United States.

To the Editor of the National Car-Builder:

Your October number contains an article headed "High Speeds on Railways," which has many good points, as well as some statements which are manifestly erroneous. The article is credited to *Science*, an American publication, I believe, and although it has been copied into a number of our railway journals, its errors of statement in regard to the relative size and speed of English and American fast trains have not, so far as I am aware, been made a subject of comment.

The article states that the average English express train carries three times as many passengers and is considerably heavier than the "New York and Chicago Limited" express running between the two cities *via* the Fort Wayne & Pennsylvania route, and making an average speed of 33.8 miles an hour, including stoppages. Without knowing the weight of the Chicago Limited, I can not positively contradict the statement of the writer as to comparative weight. But if we take our ordinary express trains, we find them much heavier and capable of carrying many more passengers than the average English train of the same class. A prominent English railway official which the writer met in Chicago last summer, and whose statements have the weight of authority, said that an English express train was usually composed of 10 or 12 cars weighing about 12 tons each, and having four compartments seating six persons each. As one of the cars in the train is a "brake van" and another a "luggage van," the remaining ten will hold 24 passengers each, or 240 in all, if the seats are all filled; and the 12 cars weighing 12 tons each make the weight of train 144 tons, exclusive of engine. The ordinary American express or mail train, as your readers are well aware, consists of about six passenger, two baggage and one mail car. The six passenger cars will seat 60 persons each, or 360 in all, and will weigh about 25 tons each. The baggage and mail cars will weigh 18 tons each, making the total weight of train, exclusive of engine, 204 tons.

This places the matter in a somewhat different light from what appears in the article from *Science*. The same article also refers to the frequent stops which it is necessary for trains to make on our roads in consequence of defective signals and other causes, as an impediment to high speeds; and as an illustration of the serious nature of the impediment, it is stated that the Zulu express on the Great Western Railway of England, which is the fastest train in the world, has to run a distance of 26 or 28 miles, after a stop, even when the track is straight and level, before attaining its full maximum speed of $58\frac{1}{2}$ miles an hour. Now, in the United States our fast-running trains do not make the frequent stops referred to by *Science*. On the contrary, it is no unusual thing for such trains to run 50 and even 70 miles without stopping; and it would certainly seem a little queer to American travelers riding over a road 100 miles long, to have to ride one-fourth of the whole distance before the train reached its running-time headway. But this statement with respect to the Zulu express is undoubtedly correct, as the fact was referred to by the English railway official in his interview with the writer at Chicago. It must be borne in mind, however, that the trains which run at that speed in England are few and far between. They are also very light, not exceeding 90 tons as a rule, and are hauled by engines with 7-foot driving wheels, and consequently with very low tractive force. The ordinary American passenger engine, with $5\frac{1}{2}$-foot drivers and 18×24 cylinders, would take trains twice as heavy and attain a speed of 50 miles an hour in a distance of four miles. Large drivers are used in England to make a smaller number of revolutions necessary at high speeds, which is, of course, easier on the engine, but as the large driver has a limited tractive force, it is better suited to light trains as one of the controlling conditions of such speeds.

Traveler.

Metallic Cars.

To the Editor of The National Car-Builder:

Your September number contains an editorial article on the subject of Metallic Cars, which presents some points in regard to which I must take issue.

You say that iron frames are much superior to wood in stiffness and strength, and that blows that would demoralize an ordinary car would have little effect on an iron structure. As practical experience is a good thing to fall back on, I would call your attention to an ordinary collision between two freight trains. When two freight engines with trains behind them come together at a speed of fifteen or twenty miles an hour, we frequently find the tanks proper torn from the tender frames and forced against the boiler head. Now, although these tanks are made of $\frac{1}{4}$ inch iron or steel, there is frequently not enough left of them in repairable shape to pay for the necessary labor, as the ends of the legs are generally stove in the full length of the gangway or coal pit, the side sheets are torn off below the line of rivets and stand out like two immense ears while the back sheet has the two end sills of the first car shoved six or seven feet through it. The angle iron frame is bent, twisted and broken, and the expense of cutting off the rivets, heating, straightening and reaming out the holes again—they are generally of an oblong shape after leaving the blacksmith—will cost more than a new frame of angle iron. Now, you would not make the sides of an iron car of $\frac{1}{4}$ inch iron (probably not over $\frac{1}{8}$ inch), and if the shock of an iron car demoralizes a tank of that weight of iron, it is to be presumed that a car body if made of $\frac{1}{8}$ inch iron would be in a much worse shape.

Coming now to the iron frame of the tender. The shock of collision usually bends in the end sills, or end channel bars rather, of the frame and as it is bent in, it still keeps its hold of the side sills and intermediates with the result of pulling them in, tearing out rivet holes, bending the braces and making about the ugliest thing to repair you ever saw. First of all the rivets, of which probably 300 have to be cut, each piece of the frame heated and straightened, when it is generally found that the necessary hammering has lengthened this brace or that sill, and the thing won't come together in any way or shape. After considerable figuring and throwing away of one piece and another, the frame by prying and forcing is got into some shape, but resembles the original frame about as much as the shot and shattered soldier does the original recruit. Then it is found that the rivet holes are "blind," and they have to be reamed out from $\frac{3}{8}$ to $\frac{1}{2}$ of an inch, making it necessary to use all sizes of rivets before it is finally fastened together again. To say that a new frame or that the entire frame and tank could be built anew cheaper than to repair the damaged one, will find a hearty indorsement from nine master mechanics out of ten.

Possibly the life of an iron car would be longer than that of a wooden car, if it never met with a serious accident, but it would be necessary to keep it well painted, and the attention in this respect would be much greater than with the wooden car. You know with what care a railway company examine and paint their iron bridges, while the old wooden bridges frequently get as gray as a badger for want of paint, and with no bad results, either. One-half of this inattention to an iron bridge would reduce it to a pile of rust.

Suppose a flat car to be loaded with rails or long lumber, and the car behind it to be an iron box car. If this train gets into a very light collision or a sudden stop is made, the load of the flat car frequently shifts sufficiently to punch a hole into its neighbor. The repairing of such a hole in a wooden car is a simple job of a few hours for one man. But if the car is of iron the sheets must be first straightened, then a row of holes must be drilled or punched around the hole; next a sheet to cover the hole must be cut out and laid over it, the rivet holes marked through on it, then punched and finally riveted into place. Now how are you going to make the rivet holes in the car end? If by hand and with a ratchet drill, you can well imagine the time necessary; if by a portable power of some kind, the time may be lessened; but with the very best and most improved methods it can not be done in half the time the hole in the wooden car can be patched. You also say that a blow that will break an end sill of wood or knock off the corner of a car, would not effect an iron car. This I cannot admit after seeing several wrecked tenders, and it looks reasonable that a blow sufficient to break an end sill of wood would badly bend an end sill of iron, and it is this single feature, *bending*, which is so costly to repair in iron tender frames. You have not probably overlooked the fact that the iron car is not going to be so much stronger than the wooden car, for the reason that the weight must be kept down to a minimum; for if the iron car is to be so strong as to withstand without damage a blow that would knock a wood sill into uselessness, the weight of the car will be such that if paying loads are carried the rates will have

to be raised to pay for the increased wear of the track, and the interest on the increased capital necessary to keep such valuable masses of iron in service. It seems to the writer that no one now living will see the universal use, or anything like it, of iron cars, for this is not the case even in England, for as car lumber grows dearer, it will prove sufficiently remunerative for farmers and others to plant and raise timber trees, as many are now doing with black walnut. CAR-BUILDER.

The Drawing Attachments of Freight Cars.

To the Editor of the National Car-Builder:

There seems to be some diversity of opinion among railway men in regard to the merits of continuous draw-bars as compared with the better class of drawing attachments that are not continuous, such for instance as was recommended by the Master Car-Builders' Association at its annual meeting in Chicago in 1879. The superiority claimed for the so-called continuous draw-bars is that they push the cars instead of pulling them, the *modus operandi* being the same in principle as if a large rope were used for the purpose, with knots in it a little over a car's length apart, which knots, if the rope were passed through the line of draft, would come in contact with the back draw-head of each car and so push the car ahead by means of the knot, and thus subject each car to the strain of its own weight on the draw-bar spring and no more. The principle involved is a correct one, no doubt, and the drawing attachment recommended by the Association only so far as its leading features and dimensions are concerned, acts in many cases on the same principle. Let us take, for example, a box car with two longitudinal truss-rods under it. If the end sill fastenings to the side, intermediate and center sills were removed or loosened, the car would be pulled from the back end by means of the truss-rods, the strain on the rods tending to straighten them in the mean time and so prevent the car body from sagging.

It would appear, therefore, that with the improved draw gear used in box cars, the draft is from the rear end; and although half the repairs to freight cars are probably on the drawing attachments, this large proportion is doubtless due to the great number of old and defectively designed cars. A modern car, with the style of draw-bars recommended by the Association, may be counted on to last as long and with as little repairing as a car with a continuous draw-bar, for the reason that the former is virtually pulled from its rear end. So far as the springs are concerned, there would seem to be little choice between the two methods. If the strain is so great at starting as to close the springs ordinarily used, the entire strain is transmitted by the longitudinal sills to the back end sill, and in that case the tensile strength of the former is greater than that of the 2 inch continuous draw-bar. After the train is started the strain on the springs is far below the limit of their capacity. The heaviest mogul engines do not exert a tractive force of more than four or five tons while running between stations.

So far, then, as a comparison between the continuous draw-bars and the best designed draw-bars of the ordinary style is concerned, there is little choice in their strength; but when it is necessary to repair the continuous draw-bars it is a very expensive and troublesome job, especially when a continuous and solid rod is used from end to end of the car. In a wreck, this rod is pretty sure to be bent, and it is often found necessary to use an engine to pull it out in order to get at it and straighten it. This heavy jerking to get it out strains and loosens the joints of the car frame. Another objectionable feature is the use of a 2-inch rod without enlarging the ends through which a key-way is punched, thus materially reducing its strength at that point. Or, if the bar is sufficiently strong at the key-way, then the rest of it is larger and heavier than necessary, and adds that much to the dead weight to be hauled. When a link or coupling is in the centre the trouble is not so great, but in case of a wreck the rod is nevertheless pretty sure to get bent, and although the center coupling facilitates the getting out of the rod after it is disconnected, it is no easy matter to disconnect it when it is jammed and strained out of shape and position.

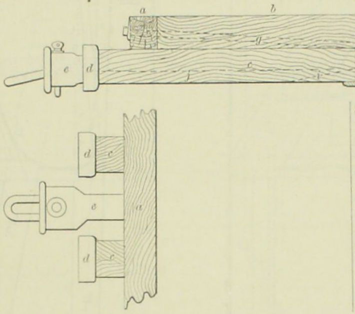
The greatest trouble with the ordinary draw-rigging is owing to improper designing. In many cars it will be found that the draft timbers are simply bolted to the centre sills with no tie-rods from the end sill to the bolster, and without keys between the draft timbers and sills. In others, a joint bolt runs from the back end of the timbers through the bolster, while in others an angle iron is bolted to the timber and bolster. The proper design would be the abutting of the timbers against both the end sill and bolster, with cast-iron keys between the sill and timbers, through which keys should pass, the bolts holding the draft timbers to the sills. Two bolts running through the end sill and bolster make a compact job, while two truss-rods from end sill to end sill make a complete and self-contained job, superior, all things considered, to the continuous draw-bar. In connection with this subject it appears that if the draft timbers extend outside of the end sill, and are heavy enough and present surface enough, there is no reason why they should not answer the purpose of dead blocks; and as they would be on a line with the draw-head, the danger of a man's hand or arm being caught in coupling would be entirely avoided, while they would at the same time keep the cars apart under all circumstances. VIDET.

Dead-Blocks on Freight Cars.

To the Editor of the National Car-Builder:

I notice in your October number a communication recommending a proposed substitute for dead-blocks on freight cars. This seems to me to be a step in the right direction, namely, the doing away with the use of such blocks *above* the draw-bar. It is plain that if dead-blocks are placed on a line with, or below the draw-bar, the element of danger inseparable from those now in use will disappear.

The accompanying sketch illustrates what I consider an improvement on the plan set forth in the communication referred to. As the only purpose of dead-blocks is to prevent the end sills of cars from coming in contact in case the draw-bar fails, any device that accomplishes this purpose will do, if it is as effective and does not cost any more than the ordinary methods. Dead-blocks have been attached to end sills because they afford a solid foundation for resistance to the shocks of collisions. It has been



proposed, and the idea has been acted upon by some roads, that the draft timbers should be extended beyond the end sills so as to answer to some extent the purpose of dead-blocks. But as the back ends of these timbers are cut off in a slanting direction, as indicated by the dotted line *i* in the side view, the effect of a heavy shock is to split off that portion of the timber below the dotted line *j*, inasmuch as this portion is unsupported at the end and resists only the tendency to split.

As an improvement upon this I would recommend the fastening of a cast-iron pocket *h* to the bolster, which in turn is securely bolted to the end sill by the bolt *g*, so that any blow on the casting *h* is transferred to the bolster and thence to the end sill, thus bringing the force of the shock upon the side sill as at present. The draft timber *c* being pocketed and abutting against the casting *h* at the back end and faced with a cast-iron cap *d* at the forward end, is so well supported as to be capable of resisting shocks in the best possible manner. The space between the draft timbers, as shown in the top view, is sufficient to allow the draw-bar *e* to be forced back between them. A collar placed on the draw-bar, so as to abut against the end sill, would be an additional safeguard.

This plan seems to me to be a practicable one for getting rid of the dead-blocks altogether, as it is their location on the end sills that brings the arm of the brakeman on a line between them. But if they are placed on a line with the draw-bar, as shown, the natural position of the man's arm would be above such line, and the chances of its getting between the timbers of opposite cars while coupling would be very much diminished. RAILROADER.

Telescoping Collisions.

To the Editor of the National Car-Builder:

In passenger train collisions, telescoping is the most to be dreaded for the reason that it is attended with a greater loss of life than occurs in other classes of accidents; and when the cars take fire, which is frequently the result of telescoping, the horror of the situation is aggravated by the burning of dead and wounded passengers. While our railway managers are alive to the importance of using every precaution that skill and foresight can suggest to prevent accidents of every kind, still, it must be admitted that passenger train collisions are unpleasantly frequent, as will be seen from the following statement of the number of persons killed and injured by such collisions during the past four years, the statement being compiled from sources that are reliable and approximately correct:

	Killed.	Injured.
1879	94	286
1880	156	412
1881	209	565
1882	177	588

The first three years show a rapid increase in the number of killed and injured, while in 1882 there is a falling off in the number killed, and although the injured exceeds the number in previous years, the maximum of both seems to have been reached in 1881. Whether this maximum is or is not to be exceeded in future, time can only determine; but it is reasonable to expect that improved safety appliances and greater care in management, other things being equal, will have the effect of diminishing the number of collisions. But it is not so certain that this will diminish correspondingly the number of casualties resulting therefrom. These accidents are sure to happen in spite of all precautions, and although the number of them may be less, the increased rate of speed of trains is likely to render them more destructive when they do occur.

If something could be done more effectually to prevent cars from telescoping when trains collide at high speeds, much suffering and sacrifice of life would be avoided. Some of the worst accidents from collisions that are now on record would have been comparatively trivial had it not been for the breaking of couplings and the sliding of the cars into and through each other. This result is, of course, more likely to attend collisions of heavy trains at high speeds than in cases where the trains are lighter and the speed slower, and the crash and breaking up of the car body less complete. In the one case the occupants of a car are likely to escape with a few bruises more or less severe and a general shaking up, while in the other a scene is presented more sickening to the beholder than the worst carnage of the battle field. In collisions of a comparatively mild type, the cars have a tendency to crash into each other. The platforms are traps ready set at all times, and unless the couplings are such as to keep them from sliding one upon another, there is no security against telescoping. The force of the impact must expend itself somewhere, and in case the platforms could be kept in line there is danger that the car body would break in the middle. This might be guarded against more fully by bracing and trussing the floor-frame in a stronger manner, or by using wrought iron or other metal in connection with the sills, that would make them stronger and less liable to splinter in breaking. The inside of an ordinary passenger car, with its seats and seat frames and its fragile cabinet and ornamental work, instantly becomes a mass of splinters in a telescoping collision, pinioning and transfixing the occupants.

The advocates of metallic cars make this a strong point in favor of their methods and material, and there is really some force in the reasons they present. Without going into a recapitulation of the arguments in favor of iron construction, that are so familiar to all car-builders, I would simply suggest that the practical means of lessening the destruction of human life in passenger train collisions are not yet exhausted, and that if the yearly increase in the number of victims is to be arrested, some means must be resorted to to give cars a greater capacity of resistance in the line of the platforms. Otherwise, the increased speed and weight of trains will make collisions, although fewer in number, more destructive to life and limb in the aggregate than they have hitherto been. WM. S. HUNTINGTON.

A Defect in Technical Books.

We long for the day when compilers of technical books, discarding higher mathematics, will put the results of their reading and study into simple calculations, so that those who need the information can buy it. As it now is, all advanced investigations are wrapped in densest gloom to the very class who thirst for the information, and have the money to pay for it.

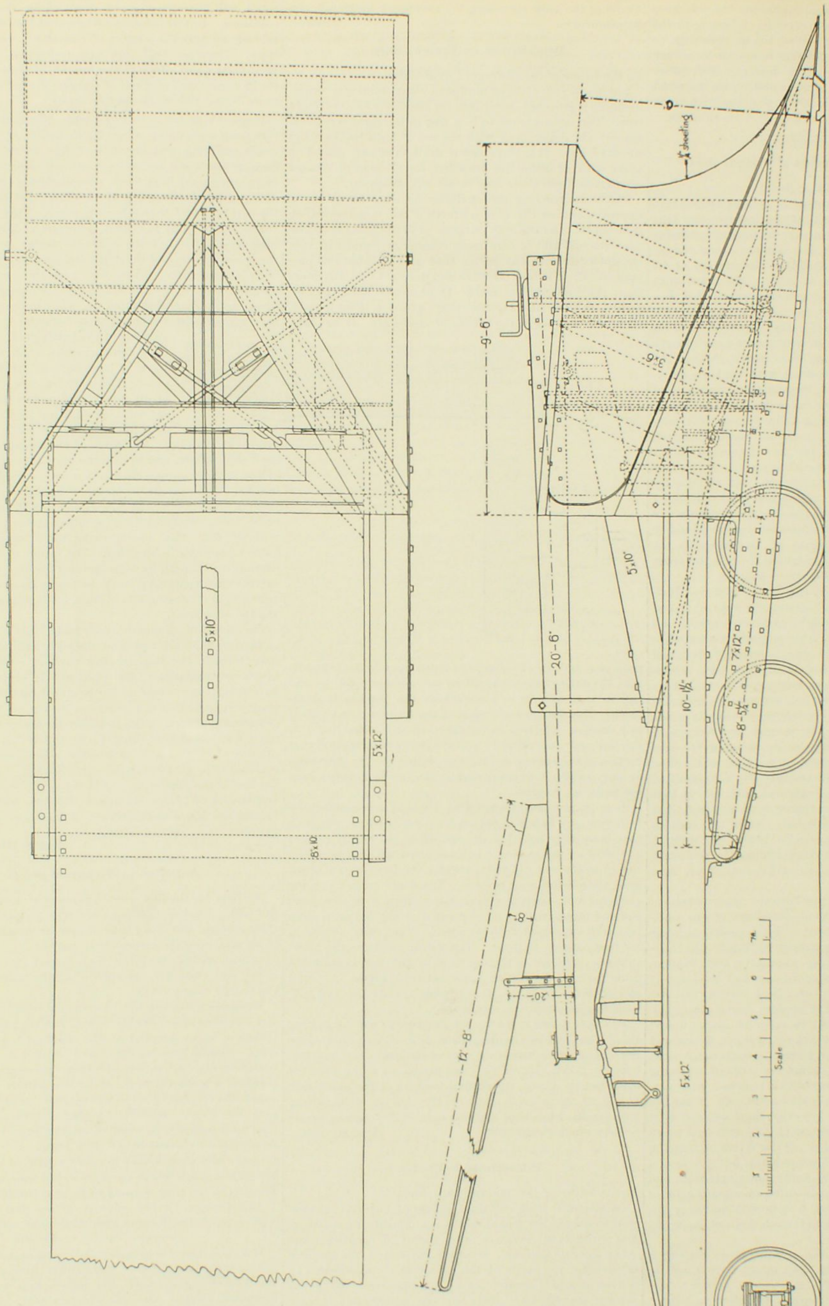
Mathematicians are few; persons of liberal education in any mechanical pursuit are fewer, and the great need is for technical books adapted to the wants of workers in all lines. Simple in style, direct and correct in conclusions, few in words, but positive in results: these are the cardinal points of a technical work, and when writers fully understand this the sale of them will increase most rapidly. The men who do not understand higher mathematics are those who need instruction, while those who do understand them do not need technical books, as a class. For example, a foreman of a shop wishes to make a pair of cone-pulleys, and buys a work which purports to tell him how to do so. Turning to the page devoted to it, he is handed this:

If, therefore, v is the velocity of the first pair of pulleys, a and b, the velocity ratio of the rest must be:

$$vr\ \ vr^2\ \ vr^3\ \ .\ .\ .\ \ vr^{n-1}.$$

When he sees this he naturally stands appalled and feels a little indignant withal. It tantilizes him to think that the knowledge he seeks lies before him written in an unknown tongue, and he wonders why his wants are ignored, and mechanical or technical works are written for professors instead of machinists. We join in the plaint. The voice of the foreman is our voice. Technical books, in a majority of cases, are far away from the comprehension of working mechanics, and the sooner a change is made in the methods of treatment of the calculations, the greater will be the demand for them.—*Mechanical Engineer.*

AT the West Albany shops of the New York Central road there were produced in the foundry during the month of August 607,240 pounds of cast iron, of which 352,630 were for the locomotive department and 254,610 for the car department; also 31,819 pounds of brass castings. The average cost of the brasses was 15.93 cents, and of the iron 1.62 cents per pound. There were also 136,169 pounds of hammer forgings turned out, including 120 car and engine truck axles, and four engine driving axles.



SNOW PLOW—ILLINOIS CENTRAL RAILROAD.

Designed by W. B. Snow, M. C. B.

This plow is designed to be used in lieu of a more expensive one, and its performance thus far has given very good satisfaction. It can be attached to an ordinary flat car, and the point is adjusted to the rails by means of a hand screw. The forward end has an iron shoe by which it slides on the rails. When not in use, the plow proper can be raised from the rails by a lever.

SAMPSEL'S IMPROVED LOCOMOTIVE SPARK-ARRESTER AND SMOKE-BOX FRONT

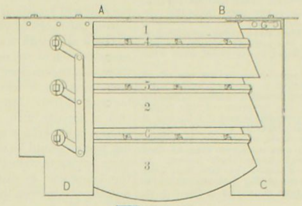


Fig. 3.

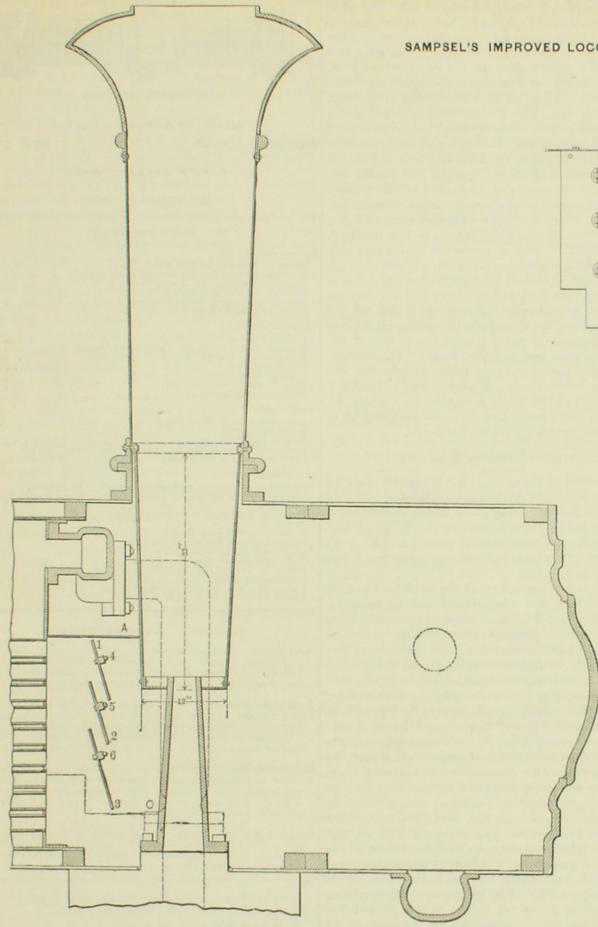


Fig. 1.

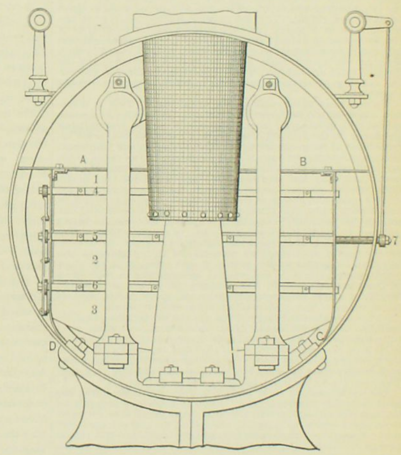


Fig. 2.

THE engravings represent a new form of locomotive spark-arrester, designed by Mr. J. E. Sampsel, Asst. Master of Machinery of the Pittsburg Division of the Baltimore & Ohio Railroad, and which is now in use on that division.

Fig. 1 is a longitudinal section, Fig. 2 a front view, and Fig. 3 a perspective view of the apparatus, the essential features of which are a series of shutters in front of the tubes for deflecting the escaping gases and cinders and capable of being opened or closed on an extended smoke-box with the usual netting. The numbers 1. 2 and 3 represent the shutters and 4, 5 and 6 the shafts to which they are attached. A B, in Figs 2 and 3, is a plate or sheet extending clear across the smoke-box, and from the flue sheet out as far as the steam pipes. C and D, in Figs. 2 and 3, are side-plates bolted at the top to a pair of angle-irons on the under side of A B, and extend downward to the smoke-box to which they are bolted. These plates carry the shafts 4, 5 and 6. The main shaft 5 is seen in Fig. 2, extending outside of the smoke-box. At its opposite end, it is connected with the other shafts by cranks and rods. The shafts are square, and are turned to form journals in the plates. A crank on the outside of the main shaft, at 7, Fig. 2, is connected to the hand-rail outside of the smoke-box, so that the shutters can be opened or closed from the cab, and the draft regulated. The lower shutter has a circular outline on the bottom, as seen in Fig. 3. Fig. 2 shows the position of the exhaust nozzle with a conical netting extended into the base of the stack, and also of the two steam pipes which are flattened and carried out on each side of the nozzle, this form being adopted in order to obstruct as little as possible, the passage of the gases into the extension box. The netting can be made of the basket form, extending from a flange on the nozzle to the stack, as shown in the cuts, or it may be flat, starting at the plate A B and running out in a nearly horizontal direction into the extension. We append the following communication from a locomotive engineer who is familiar with the practical working of the device:

MR. EDITOR:—In the September number of your valuable paper I notice a communication signed "Locomotive Engineer," containing some unfavorable comments in regard to the utility of the extended smoke arch on locomotive boilers. I have been running engines on the Pittsburg division of the Baltimore & Ohio road, both with and without extended fronts, and I find that the former are a great improvement on the latter, both as to cleanliness and steam. During the past three months, however, I have run one of these engines with an improved smoke box front patented by Mr. J. E. Sampsel, the Master of Machinery of this division of the road, and I have never seen any arrangement so effective for arresting sparks and cinders. It also effects a great saving in fuel. The engine makes 100 miles a day with local freight trains, and saves from 30 to 35 bushels of coal per day as compared with the quantity consumed by the same engine before the improved smoke box was attached to it. The extension front does not fill up more than half as fast as it did, and it throws no sparks. I have made trips of 100 miles with heavy trains doing local work, and on 90-foot grade to the mile, without blowing out front, and then there were only 15 bushels of sparks in it. There are two passenger engines with this improvement running on this division, and they have made the round trip of 184 miles with four cars without blowing out, and then by actual measurement only 12 bushels of sparks had accumulated. These two engines are saving two tons of coal each per round trip, and at the same time are steaming freely.

ENGINEER.

American Street Railway Association.

There was a very full attendance at the annual meeting of this Association in Chicago on the 9th of October. A number of interesting reports were made by committees appointed in December last at the meeting in Boston, and a good deal of routine business was transacted.

The committee on Track Construction recommend good gravel as the best ballasting material for road beds, also heavy tram rails, weighing 40 or 45 pounds to the yard, where the traffic is heavy. In suburban towns where the traffic is light, a much lighter rail will do, and paving can in some cases be dispensed with. The committee also recommend narrow-gauge tracks for suburban towns—the gauge ranging from three to four feet. This would prevent other vehicles from traveling on the track, a lighter car can be used, and 33 per cent. less power is required to pull a car on a 3-foot gauge than on the standard 4 ft. 8½ in. gauge.

The report of the committee on Snow and Ice brought up the question of using salt for the removal of such obstructions. The discussion which ensued showed that the members were quite unanimous in the opinion that the use of salt, although somewhat expensive, was not injurious to horses, as was generally supposed.

There was no report made on the subject of Heating Street Cars, but the matter was very fully discussed. The prevailing opinion seemed to be that the warming of street cars was a thing of very questionable expediency. They were too small and too much crowded for a heater of any kind, and could not be warmed without making their occupants uncomfortable in consequence of a lack of ventilation, and in case the cold air was let in the draft gave everybody a cold. Good, clean, well ventilated cars, moving at a reasonable speed, was all the public had a right to expect. One member suggested that as public opinion was very much divided on the subject, the only way was for street railway companies to deal with the matter from the stand-point of their own interests.

MECHANICAL MOTORS FOR STREET RAILWAYS.

The committee on Motive Power made a report. After considering the economy of animal power in its various aspects, the report proceeds as follows in respect to the mechanical motors that have been tried:

Now we are in a wide field. We have first the ordinary steam locomotive, built with a view of being useful in the public streets—we will say noiseless, smokeless and beautiful to the eye. Then we have the fireless locomotive, receiving its charge of steam at the end of the route from stationary boilers. We have also the pneumatic engine, very closely allied to the fireless engine, the difference being in a charge of compressed air in one case and a charge of steam in the other. Electric engines are also in use, receiving their power from an electric current generated by a stationary steam engine, and transmitted to the car by utilizing the rails of the track to form a part of the circuit.

We have heard suggested, but never tried, to our knowledge, the application of a gas engine, that utilized the explosive power of gas as a motor. All of this class of motors rely entirely upon applying motive power so as to rotate the wheels of a car or motor, obtaining their locomotion from the friction between the wheels and the rail. In this they resemble steam railroads, but encounter difficulties that steam railroads know nothing about, our curves being of necessity of a very much shorter radius, and grades being in the highway, are fixed by the laws of chance, or bad engineering. Even in cases where we are fortunate enough to have a straight and level road, we still have the grit and dirt to contend with that is necessarily present in all thorougfares. Our track being on a level with the surrounding road-bed and not elevated above it as our neighbors'; add to this the snow and ice difficulty, and you have a complete picture. For instance, a number of able-bodied passengers assisting to start a car with the usual kind words for the management heard on such occasions.

It may be said, in answer to this, that New Orleans has had in successful operation for years steam locomotives applied to their street railroad system. While this is true, the limited way in which it has been used, never having grown at all in its many

years of service, proves that even there, under the most favorable circumstances, it has not been very successful. New Orleans uses locomotives on a straight street, without a grade or curve, the track being located in that part of the street not given to the travel of other vehicles, or what is known as "neutral ground," or lawn, situated in the center of the street on which the street railroad track is laid. They only have street grades to encounter at the intersections of cross streets.

They first adopted on this road what was known as the fireless system of steam engines, getting their heat and pressure from a stationary battery of boilers at one end of the line, obtaining from that sufficient steam to make at least one trip. They have since changed this by adding the fire-box to the locomotive, so as to generate its own steam. Only under the most favorable circumstances have they been able to keep their road in successful operation with the steam motor. They have never ventured to use it in the busy part of the city. For ordinary street car service this system presents no advantages, to our mind, over what we have.

The same argument applies with equal force to the use of all motors of this class, viz.: The inability to secure friction sufficient to propel crowded cars under difficulties, unless invention devises some means of increasing the traction of the motor beyond the weight of its load. Cog-wheels would do it, but it is absurd to think of such a thing in practical use. We claim, in conclusion, in speaking of this class of motors, that they have an insurmountable barrier to overcome, so long as they rely upon merely rotating the wheel to apply their power. In this, of course, we are taking for granted the fact that they can produce a machine of sufficient durability and simplicity to be easily controlled by the class of men employed ordinarily on street railroads.

As to elevated railroads, they are, strictly speaking, not one of our class. We are bound, however, to recognize this fact: That there is a point beyond the abilities of our ordinary system of surface roads to do the work required, and when this point is reached, the elevated road becomes a necessity, especially when a great number of passengers over a given line are to be carried a long distance, in which the time occupied in making the trip the ordinary way is too lengthy, condemning, as it does, a vast community to an imprisonment in a street car of several hours a day, which in the course of a year amounts to many days. For instance, a passenger having seven or eight miles to travel daily from his home to his place of business and return, will, on an average consume three hours a day in a car, though he only makes the trip morning and night. This for a year amounts to about 30 days' car riding. The idea of being confined to 30 days' imprisonment in a street car, even to the most ardent admirer of our profession, is not an agreeable thought. The great expense and cumbersome appearance on the street will, of course, retard their growth until to build them becomes a necessity. In our opinion, there are but few, if any, opportunities for the successful building of elevated railroads in addition to those already constructed.

We now come to the cable system of railroads. This is a system which utilizes the power of a stationary engine, to operate cars at will, miles away from the source of power, transmitting the power by the medium of an endless cable, to the point required and at the necessary time. This system in our judgment, (though in its infancy now) is on the right road to solve the problem of dispensing with animal power, a system instead of a disadvantage, and less serviceable on heavy grades and in the midst of snow storms, furnishes at such times a superabundance of both speed and ability to resist obstacles—a system that does not depend upon the friction between the wheels and the rail for its power of locomotion; a system that enables street railroads to handle immense crowds by the simple addition of a few more bushels of coal and the putting on of extra cars, without the fear of overloading its animals and killing more in one day than its profits would be in a month; giving us, in other words, more latitude in the way of economizing in dull times (without having horses to feed, whether they work or not), and furnishing ample means of expansion on short notice, without the necessity of hiring extra animals for such occasions.

Do not mistake our eulogy of this system by believing that we are blind to its faults, as it is of its faults that we desire most fully to be heard, hoping that in the discussion of the difficulties in its way, we may encourage the already stupendous efforts in the direction of curing them. We realize that there are many with ample means laboring for the attainment of this very end. Their success, to our mind, is but a question of time.

The cable road, as it is to-day, is only available under the most favorable circumstances. First, it requires a magnificent business, for the reason that the outlay is so great that an enormous sum is eaten up in paying interest on the cost of construction. It requires a comparatively straight road, for the reason that as yet the turning of curves in an economical and simple manner has not been accomplished to our knowledge. There are a number of minor defects, which are always found in new machinery. These can only be remedied by time and experience. But minor troubles should not discourage us in the least, our main objection being to the two points above stated. The first, the heavy outlay involved, is not so serious a matter, as we see indications of a simpler and more economical construction being developed. Add to this the very low price steel has reached, with the tendency still downward, we are of the opinion that the cost of the road-bed construction will, in a short time, be greatly reduced. As to the difficulty they have in accomplishing curves, we are quite sure that invention will devise some means of curing the evil. The system as it is now has as its worst objection the great expense in the maintenance of auxiliary cables. But, with all its defects, it gives us great hope.

The following officers were chosen by the Association for the ensuing year:

President, Wm. H. Hazzard, Pres. Brooklyn City Railway Co., Brooklyn, N. Y.; 1st Vice-President, Jas. K. Lake, Superintendent Chicago W. Division Railway Co., Chicago, Ill.; 2d Vice-President, Geo. B. Kerper, Pres. Mt. Adams & Eden Park Railway, Cincinnati, O.; 3d Vice-President, D. F. Longstreet, Sec. and Treas. Union Railway Co., Providence, R. I.; Secretary and Treasurer, Wm. J. Richardson, Sec. Atlantic Avenue R. R. Co., Brooklyn, N. Y.

Executive Committee, H. H. Littell, Louisville, Ky.; John G. Holmes, Pittsburg, Pa.; J. E. Rugg, Boston, Mass.; P. C. Maffett, St. Louis, Mo.; Jacob Sharp, New York, N. Y.

The Association will hold its next annual meeting in New York on the third Wednesday of October, 1884.

Device for Testing the Eyesight.

W. H. Brown, private secretary to Superintendent Ralph Peters, of the little Miami division of the Pittsburg, Cincinnati & St. Louis road, has devised a plan for testing the range of vision and power of distinguishing colors. The mode will most probably be adopted in the examination of engineers and conductors, and especially the former, for the purpose of ascertaining if they are fitted for their positions. The device consists of a square piece of card-board ten inches each way, in the center of which is a white dial or face, seven inches in diameter, bearing around the inner circumference eleven circles, from two down to three-sixteenths of an inch in diameter, placed equi-distant from each other, and colored red. The piece of card-board outside of the dial is black. In an examination the party being examined is required to look steadily at the center of the dial for fifteen seconds, and then look at one spot on a white wall or piece of paper, where, if his vision is not defective, or if capable of distinguishing colors, he will see photographed on the white surface of the dial, which will look dark, with the surrounding black, which will be of a pale yellow, while the small red circles around the dial will appear green. The card is also to be used for testing the range of vision, for instance: At a distance of 75 feet a man with unimpaired eyesight can readily distinguish each of the small red colors, and tell how many there are, the number being changed on each examination. Some men can, however, only distinguish them at a distance of 40 feet. 75 feet will, however, be the standard. Out of twenty men who are examined by this plan only eight would perhaps reach the standard, while the remaining twelve would be obliged to be much nearer the object, some having to reduce the distance even to forty feet before being able to distinctly see each circle and tell the number of circles on the white dial. In some men it is found that, while the range of vision is good, the power of distinguishing colors is bad, and vice versa. An engineer, however, should possess not only good eyesight, but also be free from color-blindness. The colors used by the Pittsburg, Cincinnati and St. Louis as signals, are: White, denoting safety; red, danger, and green, caution, and all of these colors Mr. Brown uses in his tests.—*Ex.*

Early Railroading in Kentucky.

A correspondent of the Quincy (Ill.) *Whig* describes the first railroad in Kentucky. It was completed in 1838, and ran from Lexington to Frankfort, a distance of 23 miles. The rails were flat iron bars 2½ inches wide, fastened with bolts to limestone sills from 10 to 18 feet long, laid down longitudinally. Only passenger cars drawn by two horses were used at first.

The cars were two stories high and very curious looking affairs. The lower story was inclosed and set apart for the use of ladies and children, while the upper story being open, was generally occupied by men. But in warm weather many ladies preferred to ride upstairs, as they called the top story. The first winter played the mischief with stone sills, the frost cracking and breaking to pieces many of them, so they were all taken up and replaced with wooden sills. Many of the stone sills can still be seen lying alongside the track in places. The road is very crooked because the engineers who surveyed it were averse to crossing streams on bridges, so they went around the streams, alleging that it was an advantage to have the road crooked so the conductor could look back and see that his train was all right. Between Lexington and Midway are two very deep cuts through the solid limestone, which would in these days be tunneled. Some years afterward it was discovered that there were no tunnels on the road, as in England. A proposition was made to cover these deep cuts over, and thus convert them into tunnels, but as there was no spare dirt on top, the expense of getting it up was thought to be too great, so the tunnel project was abandoned as not really essential to the running of the road. After a time a locomotive, or steam car as it was then called, was put on the road. This was small and even more curious looking than the passenger cars. It had no such tender as at present. The tender was a sort of flat car with room for wood and a hogshead of water, which was filled by pumping from a well on the side of the track. The engineer and fireman were exposed to the weather, having no shelter whatever. The engine was a great curiosity, and excited all along the line the greatest interest, wonder and awe among the people of every class —more especially the black slaves, who regarded it as the work of the devil. There was no pilot or cow-catcher, but in lieu thereof, there were two large square beams projecting out in front on each side of the base of the boiler, to which were attached two large hickory brooms, which swept the track and kept it clear of any ordinary obstruction. The grade for about a mile below Lexington was quite steep, the train always mounting it rather slow, and the boys would go down and jump upon those projecting beams and ride into town on the steam car. This was thought to be a great feat until a colored boy slipped off, and falling under the driver, was decapitated, after which the boys were deprived of their free ride on the rail. Soon after the locomotive was placed upon the track there was an excursion given from Lexington to Frankfort on flat cars fitted up for the occasion by the railroad company. When the train got near Frankfort it began to snow. The engine was immediately run under shelter to keep it from being injured, and the engineer positively refused to run it in the snow, fearing it might run off the slick track and get smashed up. The snow continuing to fall, many of the excursionists footed it back home. Such was railroading in "ye olden time." Frankfort being located in a deep valley, or rather hollow, on the Kentucky river, the cars were let down the steep grade by means of a rope wound round a drum or windlass worked by a stationary engine on the top of the hill.

MESSRS. SHIPMAN & BOLEN, varnish manufacturers, of Newark, N. J., state that their fall trade has been excellent, and that their varnishes are being ordered by many of the leading railroads of the country.

NATIONAL CAR BUILDER

PUBLISHED MONTHLY

R. M. VAN ARSDALE.

MORSE BUILDING .... NEW YORK.

JAMES GILLET, Editor.

NOVEMBER, 1883.

CONTENTS.

EDITORIAL ANNOUNCEMENTS.

Addresses.—*Business letters should be addressed, and drafts and money orders made payable, to* THE NATIONAL CAR-BUILDER. *Communications for the attention of the Editor should be addressed* EDITOR NATIONAL CAR-BUILDER.

Advertisements.—*Nothing will be inserted in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *The editorial department will contain our own views and opinions; and the rest of the reading matter, aside from advertisements, will be such as we consinder of interest to our readers.*

Contributions.—*Articles relating to railway rolling stock construction and management, and kindred topics, by those who are practically acquainted with these subjects, are especially desired. Also early notice of changes in railroad officers, organizations and names of companies.*

Special Notice.—*As the* CAR-BUILDER *is printed and ready for mailing on the last day of the month, advertisements, correspondencee, etc., intended for insertion, must be received no later than the 25th day of the month.*

SUBSCRIPTIONS *to the* CAR-BUILDER *will be received, and opies kept for sale, at the following places:*

A. WILLIAMS & CO., 283 *Washington St., Boston, Mass.*

L. SCHAFFNER, *Cigar and News Dealer, Grand Pacific Hotel, Chicago, Ill.*

WILLIE H. GRAY, 306 *Olive Street, St. Louis, Mo.*

ROBERT CLARKE & CO., 65 *West Fourth Street, Cincinnati, Ohio.*

OVERWORKING OF RAILWAY EMPLOYES.

There were few occupations previous to the advent of railways that required such long and continuous service as that to which a large class of railway employés are now subjected. In some of the States the hours of work in factories have been restricted to a certain limit, while in the military service the physical capacity of the soldier is not overtaxed when on guard duty, the time being limited to six hours. England also has recognized the necessity of legislation in behalf of factory operatives, and stringent enactments have been passed for their protection. But in England as well as in this country the limit of continuous work for railway servants is subject to no legal restriction. Legislative interference with the working details of railway operation should not, however, be encouraged, for the reason that experience has shown that such operation can only be intelligently directed and regulated by the executive officers of the respective companies. These officers are presumed to be fitted by thorough training for their duties, and this training should necessarily involve a clear understanding of the relations between the roads and the community for whose convenience they have been constructed. The welfare of the great army of employés should also be considered, and if legislation is needed to protect them against exactions in the shape of overwork, that protection should be afforded by the management in the form of wise and humane regulations rather than by statutory enactments.

There are some things that do not need to be proved, because they are self-evident; and among these are the limits prescribed by nature to a man's physical and mental endurance. Whenever the vital forces are taxed beyond these limits the penalty follows as effect follows cause, and the more arduous and responsible the service in which a man's capacities are overtaxed the worse it is for

the service. This is especially the case in railway operation. Upon roads burdened with traffic at certain times in the year it is well known that locomotive engineers, firemen and conductors are often worked to the verge of utter exhaustion, and that accidents more or less serious are in many cases the inevitable result. An instance or two may be cited as a sample as hundreds of similar ones that are constantly occurring.

A freight conductor brought his train into a terminal station at 2 o'clock P. M., on Saturday. His time from the previous Sunday, counted by trips, was eleven days. Too sleepy to eat or undress, he throws himself on the bed and is instantly asleep. Two hours later the train-dispatcher wants a conductor to take out a train at 5 o'clock, and there being no other conductor to do it, the sleeping man is roused and virtually dragged to the office, while protesting that he is unfit to go and that he will not be responsible for the train. The train was a special, and there was no alternative. So he takes it and goes, but finds the train a mixed one, with a coach full of passengers to be left at a certain station. On arriving there the conductor attends to the passengers, leaving the coach on a side track and going on with the rest of the train. The brakeman who had been instructed to close the switch, left it open, and the night being dark and foggy, the next down train runs into it, slightly damaging engine and one car. The conductor was discharged and posted for leaving switch open.

Another instance is that of an engineer who was forced upon duty under very similar circumstances after a continuous run of 48 hours. He was told by the dispatcher that it was a through train with only meeting points to make, and that he need not be out more than eight or nine hours. He starts out, the night is dark, the cab warm, and the struggle between outraged nature and the effort to keep awake was more than he was equal to. In an interval of unconsciousness, after vainly trying to distinguish landmarks in the darkness and get his location, he passes the switch he should have entered, calls for brakes and tries to stop, but strikes and slightly injures the engine of the train he was to pass and also his own engine. Penalty, indefinite suspension.

A case of recent occurrence is reported in an English journal in which a train of empty excursion carriages between Bangor and Chester failed to reach a block station when due. Half an hour having elapsed, and the fast Irish mail from London to Holyhead being also nearly due from the same direction, the officials became alarmed. An inspector was sent down the line and found the excursion train at a standstill, the engineer and fireman fast asleep on their engine and the fire in the fire-box almost out. The block system prevented an appalling accident. It is said, however, that the driver and fireman misrepresented at Bangor the time they had been on duty, or they would not have been allowed to proceed on their return trip.

These are mere commonplace examples of what is occurring every day. None but those who are familiar with the arduous duties of train service can realize the exhausting and even demoralizing effects of overwork. Well meaning, faithful men of correct habits, when subjected to this excessive strain, are apt to become discouraged, indifferent and even reckless in many cases. Exposure to night air, the trying vicissitudes of weather and temperature, and without regular meals, excite a relish for stimulants which produce under such conditions a grateful and exhilarating effect, and ultimately confirmed habits of intemperance and consequent disqualification for railway service.

SPEED RECORDERS.

A number of roads are using on their freight trains a device known as a speed recorder, and which consists of a wheel which can be lowered so as to come in contact with one of the axles of the caboose. From this axle it receives its motion, which is transmitted by suitable shafts, etc., to a system of paper rollers in the caboose, on which the speed is recorded by a clock-work and pencil arrangement. The apparatus is set for working at the station where the trip commences, and the line drawn on the paper at the end of the trip indicates the speed at which the train has been moving, the number of stops, when and where made, and the time occupied by each. This record enables the road officials to see at a glance if there has been any deviation from the prescribed speed, or, if unauthorized stops have been made, that they are duly reported and explained. This, at least, is the theory of the device, and by the record it makes engineers and conductors are suspended or discharged and witnesses in suits against the road disconcerted and dumfounded. A little examination of the details of its operation, however, will show that the theory as to its correctness does not hold good in practice. The principle upon which it is constructed assumes a positive diameter of car wheel and axle, or of a hub bolted to the axle. But it is evident that what is known as a 33-inch wheel may be, and in most cases is, either larger or smaller than its nominal diameter. Wheels on the same axle are frequently of different diameters, and trucks often get out of square. In any of these cases one of the wheels will crowd its flange against the rail and run on its largest diameter, while the opposite wheel will run on its smallest. This may cause a variation of ¼ or ⅜ of an inch in the diameter, and it is evident that if the recorder is designed for a 33-inch wheel its record can not be correct. It is well known that in the cases cited the smaller wheel slips, because the larger wheel, if its flange is against the rail, has this additional surface in frictional contact in excess of its mate, and therefore can not slip. It has been found upon trial that two or more cabooses with their recorders attached, will, when coupled together, record different speeds varying from three to ten miles per hour. The necessity of a reliable speed recorder is apparent to every railroad manager, but it is equally apparent that the speed must be regulated by something less variable in size than an ordinary cast-iron wheel.

FREIGHT CAR ROOFS.

One of the most desirable things in freight car construction is a roof for box cars that will last a reasonable time, keep the water away from the freight, and require only a moderate amount of repairing. The short life and untrustworthy character of a large proportion of the roofs now in service are subjects of constant complaint by shippers, car-builders and others. A prominent master car-builder, a few years ago, in order to obtain some definite information as to the extent of the trouble, had the roofs of all the box cars passing over the road with which he was connected carefully inspected—including, presumably, a considerable number of the cars of his own road—the result showing the following percentages of leaky and defective roofs of the whole number of cars examined and belonging to the respective roads named:

	Per cent.
Boston & Albany	7.40
Chicago, Rock Island & Pacific	10.33
New York Central & Hudson River	15.70
Troy & Boston	22.20
Michigan Central	26.98
Boston & Maine	33.30
Chicago & Northwestern	33.30
Grand Trunk	30.00
Lake Shore & Michigan Southern	35.81
Canada Southern	50.84
Cleve., Col., Cin. & Ind	41.33

The record of the inspection is unfortunately lacking in one important particular, and that is a statement of the *kind* of roofs that were found to be defective.

What is called the double board roof is probably as troublesome and as unsatisfactory as any. They can only be made passably satisfactory as to durability and keeping out water, by a careful selection of the boards and great care in putting them on. The boards are laid so as to break joints, and gutters are made lengthwise and near the edge of each board in both layers. Any water that gets between the two layers is supposed to be caught and carried off by the gutters in the lower boards. This, however, is not the case, inasmuch as the water from capillary attraction has a tendency to work toward the edge of the boards underneath; and the confined moisture between the two layers causes the boards to rot in so short a time that the roof can not be said to last more than two years. The necessity for using the best pine for double roofs is imperative. Even if the lumber is dry, the boards will swell more or less when wet, and bulge up so as to draw the nails and let in the water. If it is green it will warp and shrink, leaving crevices for dirt and cinders to lodge.

Probably the tin roof, on the whole, is to be preferred, although it is open to some serious objections. Cinders cut and scour holes in it, the nails work out, and if the tin is laid on certain kinds of lumber, the acid in the lumber attacks and destroys it. Holes are punched in it by drovers' pikes, and it sometimes breaks and buckles when a car is heavily loaded, the grade of tin in such case being too heavy or too closely nailed to accommodate itself to the changed form of the car. Yet notwithstanding these drawbacks, a well-constructed tin roof will last five or ten years, and even longer. The laying of roofing-felt under the tin has been found very effective in closing punched holes by the swelling of the felt when the moisture reaches it. Car inspectors are sometimes furnished with a small tinners' furnace and soldering iron, and stop holes with a drop of solder. One master car-builder who has been greatly troubled on account of holes in tin roofs, recommends the use of very heavy sheet iron for roofing, say No. 15 or 16 wire gauge. How the sheets are to be fastened or the joints made between them we are unable to say.

It would seem, however, that if a tin roof could be protected from drovers, brakemens' feet and cinders, it would be as near perfection as any roof can be under the conditions of service. Why could not this protection be provided by placing a board roof in sections an inch or two above the tin, so as to allow the air to circulate between the two and prevent the wood from rotting? The cinders could be kept out by stopping the space between the tin and its protecting cover at each end of the car, and the sections could be removed when necessary for making examinations or repairs.

THE American Association of Railroad Superintendents held its semi-annual meeting in Washington, D. C., October 23. Several interesting papers were read and discussed, and a committee was appointed to prepare an address calling attention to the advantages to be secured by a general attendance of superintendents at the meetings of the Association. It was resolved that the next semi-annual meeting be held in the City of New York in April next.

INCREASE OF RAILWAY ROLLING STOCK IN NINE YEARS.

The returns as given in Poor's Manual (1873-74) of the whole number of locomotives and of all classes of revenue cars on the railways of the United States at the close of 1873, when there were 70,278 miles of road in operation, were as follows:

Locomotives (1 to every 5 miles of road)	14,165
Cars (5.1 to every mile of road)	359,979

The classification of cars, as near as could be estimated from the imperfect returns (a number of roads reporting their freight cars in the aggregate and without classification) was as follows:

Passenger	9,902
Baggage, mail and express	4,157
Box	120,000
Platform, gondola and flat	74,000
Stock	17,000
Coal (4 and 8 wheel)	128,000
Oil, ore, etc	7,000

The returns of rolling stock on the Canada roads at the same time were: Locomotives, 774; cars of all classes, 13,980.

The current number of the Manual (1882-3) reports the whole number of locomotives and revenue cars on the roads of the United States at the close of 1882, when there were 113,329 miles of road in operation, as follows:

Locomotives (1 to every 5.1 miles of road)	22,114
Cars (6.5 to every mile of road)	731,368

This aggregate of cars includes 15,551 passenger cars, 5,366 baggage, mail and express cars, and 710,451 freight cars of all classes. Assuming the classification of the freight cars to be substantially the same as in 1873, there would be about 240,000 box, 148,000 platform, gondola and flat, 250,000 coal, and 17,000 stock cars on the roads of the United States at the close of the fiscal years in 1882, the most of which ended September 30, and December 31.

The returns of the Canada roads at the close of 1882 were 1,161 locomotives and 30,985 cars of all classes.

These figures are no doubt approximately correct, or as nearly so as it is possible to make them. They show that during the nine years from the close of 1873 to the close of 1882 there has been an increase of 61 per cent. in mileage operated, an increase of 56 per cent. in locomotives, and 103 per cent. in the whole number of cars in service on the roads in the United States. The average number of miles to each locomotive has slightly decreased, and the average number of cars to one mile of road has increased from 5.1 to 6.5. The number of locomotives on the Canada roads has increased just 50 per cent. during the same period, and the number of cars considerably over 100 per cent.

If railway construction is to continue in this country until a mileage of 300,000 miles is reached, as Mr. Poor confidently predicts it will, and if the rolling stock shall continue to bear the same proportion to mileage that it does now, we shall then have 58,500 engines and 1,940,000 cars.

ELECTRIC LIGHTS ON RAILWAYS.

The electric light has been successfully used in Austria in place of the ordinary locomotive head-light, the dynamo being placed on the boiler just back of the stack and driven by a three-cylinder engine close to it, the whole occupying a space of 1½ by 2½ feet. The light is said to have been entirely unaffected by the jar of the engine while running. An attachment to the lamp turns it automatically into line with the track on curves. Ordinary print could be read by it at a distance of 250 yards, and the field or spread of the light was about 100 feet. It is also stated that the light was visible 2¼ miles, which is not very surprising in view of the fact that the ordinary oil head-light in use in this country can be seen on a straight track 15 or 20 miles. Electric head-lights were also tried in France a few years ago, and according to all accounts, with very satisfactory results. They did not blur or dazzle the eyes of engineers of passing trains, nor affect the colors of signals, s was apprehended. The Woolley electric head-light, an American invention, was recently tested at Indianapolis, Ind. It has a power of nearly 7,000 candles, and objects half a mile distant could be seen in the nignt by its light as plainly as in a clear day. The track upon which the test was made had numerous crossings and the jolting was severe, but did not affect the steadiness and brilliancy of the light.

From the progress that is now being made in electrical science, it is reasonable to expect that at no very distant day electricity will be used almost universally for lighting. Not only will it be used exclusively for locomotive head-lights, machine shops, stations, track yards, signals, etc., but for the lighting of passenger cars, which are now, as a rule, lighted in a way which it is an abuse of language to speak of as an "illumination." In picking up wrecks and in clearing a track in the night time, repairing wash-outs and bridges, and in many other contingencies in railway operation, the advantages of a swiveling or adjustable electric light on locomotives would be very great, and could hardly fail to be appreciated by those who have been compelled to do work of this kind at night by the feeble glimmer of lanterns, or a fire made of old cross-ties, or the broken fragments of a wreck. It could also be attached to wrecking or derrick cars to excellent advantage.

The Car-Builders' Club.

At a meeting of the Club held at its rooms, 113 Liberty street, on Thursday evening, October 18, the following subjects were selected for discussion at the next four monthly meetings:

November.—The Quality of the Materials used in the Construction of Railway Cars.

December.—The Carrying Capacity of Freight Cars.

January.—Car Wheels and Axles; including the Seating of Wheels on Axles.

February.—The benefits to Railways and Car Manufacturers to be derived from the adoption of a Standard Freight Car.

March.—Whether it would be practicable or economical to Light Cars either with Electricity or Gas; also the Heating and Ventilation of Cars.

A CONVENTION of inventors was held in New York October 22 and 23. An association was organized and named "The American Patent Protective Association." A constitution and by-laws were also adopted, and a memorial to Congress calling attention to existing defects in the patent laws. The officers of the Association are as follows: President, E. M. Marble, Commissioner of Patents at Washington; first vice-president, ex-Congressman A. J. Price, of Scranton, Penn.; second vice-president, Mrs. M. A. Forbes, of New York; secretary, F. W. Warner, of New York; treasurer, P. H. McNamee, of New York. The convention adjourned to meet again November 7.

Record of Locomotives on the New York Central & Hudson River Railroad.

Mr. Wm. Buchanan, Superintendent of Motive Power of the New York Central & Hudson River Railroad, has in his office at Forty-second street the most complete system of showing the condition and whereabouts of all the locomotives on the road which we have seen. Each division of the road is represented by a panel, and the engines are indicated by pegs, which are numbered to correspond with the individual locomotives. Each division has a color belonging to itself, and the pegs belonging to that division are colored accordingly. So in glancing over the various division panels, an engine that is off its own division is readily identified. Figures on the pegs indicate the size of the engine's cylinders and wheels, and the kind of service its belongs to. Sub-divisions of the panels represent the condition of each engine, and the engines are arranged according to data received weekly from the division master mechanic. The sub-divisions tell the engines that are employed on passenger service, those on freight service, the engines that are switching, also the number in reserve, those under light and heavy repairs, and the engines out of service. By this means Mr. Buchanan is able to tell at once the condition of every engine under his charge, even down to the thickness of the tires. A daily record panel shows where every engine is running or stationed, that board being arranged according to information received by telegraph every morning.—*American Machinist.*

MR. GEORGE W. MORRIS, formerly with the Kensington Iron Works, Pittsburg Steel Works, Culmer Spring Co., and now Secretary of the French Spiral Spring Co. (Limited), and lately in charge of the Western business of Messrs. A. French & Co., has left Chicago, and will in future have his headquarters in Pittsburg, where he will have general charge of the interests of the French Spiral Spring Co. (Limited) and Messrs. A. French & Co. MR. JOSEPH M. ROGAN, formerly with Hte. Petin, Gaudet & Cie., Steel Manufacturers, of France, then with Vose, Dinsmore & Co., and lately agent for the Detroit Spring Co., and who has been in the railroad business for the last seventeen years, succeeds Mr. Morris in the Chicago Agency of A. French & Co. and the French Spiral Spring Co. (Limited), and will have his headquarters at 246 Clark street, Chicago. Both of these gentlemen have a thorough knowledge of not only the manufacture of car springs, but of the manufacture of iron and steel. The success that they have met with is largely owing to this knowledge, as railway officials are desirous of being as fully posted as possible on all the details of the manufacture of this class of goods. The firms they now represent are the largest manufacturers of car springs in the world, and their goods and guarantee are unquestioned.

IN closing up the Patent Office fight between Hopkins and Le Roy, the Patent Office has awarded to "Hopkins" a patent dated October 16, 1883, having the following broad claim:

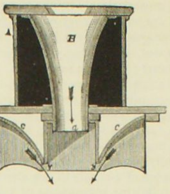
"A Journal-Bearing made of two different metals, one of a soft or yielding nature, and the other of a hard or unyielding nature, the soft or yielding carrying ridges or spurs which receive the initial pressure of the journal, and by the rolling action of the same and the load pressure upon the bearing, become crushed down and spread in conformity with the contour thereof, as described, whereby the surfaces in wearing contact are adjusted to each other, substantially as specified."

THE LIDGERWOOD MANUFACTURING CO., 96 Liberty street, New York, manufacturers of hoisting machinery, have arranged to be represented in Baltimore, Md., by Morton, Reed & Co., who are widely known as the leading machinery agency house in that city. The works of the Lidgerwood Co., are the most extensive of any in the country for the manufacture of this class of machinery, and their products in this line are adapted to meet the requirements of all kinds of work.

BELL'S IMPROVED CLOSET VENTILATOR for Railway Cars has been adopted by the Pennsylvania; the Northern Pacific; Oregon Railway & Navigation Co.; New York, Lake Erie & Western; Lehigh Valley; St. Paul & Duluth; Canadian Pacific; and the Chicago, St. Louis & Pittsburgh roads.

Improved Closet Ventilator for Railway Cars.

Among the numerous devices of practical utility that attracted marked attention at the recent exposition of Railway Appliances at Chicago was Bell's Closet Ventilator for railway cars, which effectually prevents the upward draft in the hopper and keeps the air in the closet free from offensive odors. The construction of the device is shown in the accompanying cut. It can be applied to any car now in use, as it is placed *underneath the floor* of the car with the basin pipe of the hopper resting within it, and no part of the framing has to be torn away or altered. The movement of the train in either direction causes the air to pass downward through the forward funnel *c*, creating a vacuum at the base of the pipe *a*, and securing at all times a downward current through the basin pipe. It has been demonstrated by use on a large number of the leading railways of the country that it never fails in creating this downward current. The same method is



also equally well adapted to the ventilation of the whole interior of a car, and we are informed by the inventor that it will in a short time be so applied. After a thorough examination it received the approval of the railway men who attended the late exposition, and the jurors who were appointed to pass on its merits awarded it the first prize medal for the best system of hopper ventilation known to scientific railway men. Arrangements have been made to have the device placed on all the cars of the Pennsylvania Railroad Co.'s system of roads, and some forty other roads are giving it a trial with a view to its adoption.

Since this really essential adjunct to the health and comfort of travelers has received such hearty endorsement and approval by railway men themselves, it remains with the public itself whether it shall be universally adopted on the railway cars of the country: for a perfect ventilator is as necessary a part of a complete railway coach as it is of any other public apartment.

STEAM GAUGES.—The Utica Steam Gauge Co., of Utica, N. Y., manufacture steam, water, air and vacuum gauges, testing apparatus, locomotive clocks, etc. Their locomotive gauges have won a wide reputation on many of the leading railroads of the country for durability and economy in use. While they are very sensitive in their action, there is no vibration of the hand from the motion of the engine. The movement is adjustable, no rubber is used in their construction, and the working parts are interchangeable. They are also unsurpassed in finish and ornamentation. Many sellers of steam gauges are careless with respect to the intrinsic quality of the instruments they furnish, and many users are ignorant of what constitutes a good gauge and of the way it should be used. An inferior and unreliable instrument, when new, does not differ very materially in appearance from a good one. Those manufactured by this company are warranted for two years, and the record shows that only one in 123 has been returned for repairs. The illustrated catalogue of the company contains full particulars for the information of purchasers.

THE DETROIT STEEL WORKS AND CAR SPRING CO. have placed on exhibition at their Chicago office, 103 Adams street, in that city, specimens of spring steel and of coil and elliptic springs of their manufacture. The specimens will be shown and fully tested for the satisfaction of purchasers who may desire it.

THE PINTSCH LIGHTING CO., of New York, is equipping the second installment, consisting of 100 passengers cars, for the New York, West Shore & Buffalo road, with its system of compressed gas for lighting; also 22 passenger cars for the Chicago & Atlantic Railway, having previously equipped 25 cars for the same road.

CORRUGATED SHEET IRON.—The Cincinnati (O.) Corrugating Co. have issued a handsomely illustrated pamphlet describing the various modes of applying corrugated sheet iron for roofing purposes. This company are the only manufacturers of corrugate iron exclusively, and have raised the standard of its quality to the highest degree of perfection both as respects material and workmanship. This has been accomplished by means of improved machinery which insures a perfect corrugation with a uniform depth, and sheets that are uniformly straight, flat, and free from holes, warps and other imperfections. The joints are tight and finished so as to be barely perceptible, expansion and contraction are provided for so as not to warp or displace the sheet, and there is no solder to crack off with the heating as on tin. The merits of this form of sheet iron for the roofing of buildings of every description are well known, and its improved manufacture by this company will render it more effective and durable than any other kind of metallic roofing. The pamphlet contains full descriptive details pertaining to its application to all structures for roofing, sidings, ceilings, etc., under all existing conditions.

A RAILROAD superintendent has given the San Francisco *Call* an estimate of the cost of an average train on a first-class railroad. For an express train, locomotive, $12,000; baggage car, $1,200; smoking car, $5,000; dining-room car, $12,000; five first-class Pullmans, $18,000 each; total, $120,000. The ordinary express train represents about $85,000. Some Pullman cars cost $30,000 each. The average value of a freight train is still greater than that of a passenger train if the rolling stock and value of property are included. Sometimes the through freight trains aggregate in value from $250,000 to $300,000.

A Locomotive with Driving-Wheels in Truck Frames.

A locomotive of this description was exhibited at the recent Louisville Exposition, where it attracted considerable attention. The inventor is Mr. E. Shay, of Haring, Wexford County, Michigan, who now offers his invention to the public as being adapted to all requirements. The novelty in the construction consists in placing the driving wheels in truck frames, which are free to swivel and vibrate independently of the locomotive, and thereby adjust themselves to the curves and irregularities of track with the least possible friction. The locomotive frame, including water and fuel, rests on the trucks. The mechanism used is simply a new combination of machinery in common use, and consists of a boiler and engine, differing only in their location from those in general use—they being rigidly attached to each other and to the locomotive frame. The trucks, the wheels of which are the drivers, are located at the ends of the locomotive frame and attached to it by swivel boxes in substantially the same manner as the trucks of ordinary cars are attached to the body. The power is conveyed from engine to drivers by means of universal joints and expansion couplings, forming a flexible shaft which is rigid in revolution, but flexible in every other direction, and in practice is proven to be reliable and efficient.

The plan, it, is said, admits the using of a light rail, the weight of the engine being distributed upon eight drivers or more if desired, and as the drivers are not rigidly attached to the frame, short curves can be traversed with great facility. It is claimed that upon this plan locomotives of immense power can be constructed for standard gauge roads, and that they will work around 143 degree curves, or curves of 40 feet radius (the ordinary standard curvatures being only 8 degrees, or 717 feet radius), up steep grades, etc.

It is hardly worth while to enumerate the other "requirements." An engine of "immense power," with four or six driving-wheel swiveling trucks, located car fashion, at the ends of the frame, going round 40 feet radius curves on mountain grades with a heavy train behind it, looks a little startling on paper. We hope the professional engineers will let it alone and give it a chance to show its paces, and not whistle it down the wind as they did the Fontaine, Hydrogen Gas, and more recently the so-called Murphy engine, the wheels of which were not even permitted to revolve theoretically,

A Nice Little Game.

A few days ago a man who was at the union depot to take a train suddenly cried out that some one had stolen his valise, and he began such a hullaballo that everybody had to be interested.

"I sot that 'ere satchel right down thar and stepped to the door," he explained to Captain Ballard, "and when I returned it was gone."

"Well, you should have been careful. We are not responsible for such losses."

"You ain't eh? Whar's the president?"

"Out of the city, sir."

"Whar's the superintendent?"

"He's sick abed."

"Well, now, somebody's got to make good this loss, or about half a dozen men will go to the hospital for six months apiece."

"What was the value?"

"Fifty dollars, and not a cent less."

"What were the contents?"

"I had twelve shirts, a new suit of clothes, an overcoat and lots of other things."

"Was it a carpet sack?"

"She was."

"One handle gone and the lock broken?"

"Yes, one handle was gone and I had her tied with a string."

"Is that it?" asked the captain, as he took the baggage off a bench not six feet away.

"Great snakes! that's her!" chuckled the owner.

In handing it to him the string broke, the bag flew open and out rolled two old shirts, a pair of socks and five or six paper collars—all there was in it.

"Then these are the duds you wanted $50 for?" vueried the baggage agent.

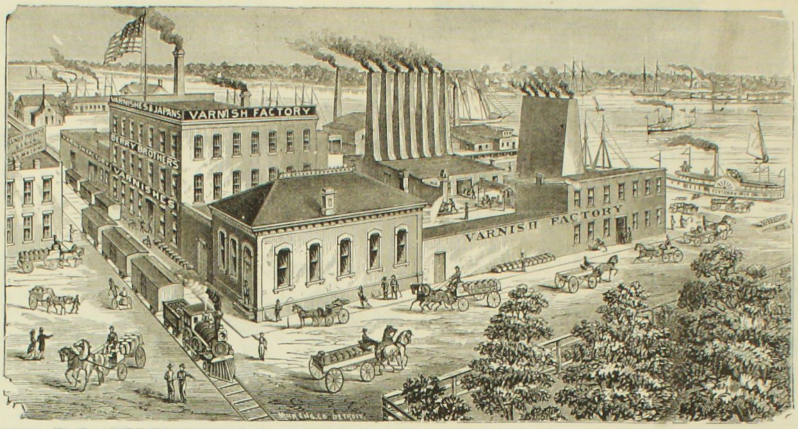
"No, sir," was the indignant reply. "I should have taken the money for loss of time and damage to my feelings. I'm no Shylock, sir!"

VALENTINE & COMPANY, of New York, the well-known varnish manufacturers, have received the award of a gold medal at the Amsterdam International Exhibition for the superior excellence of their varnishes.

BERRY BROTHERS, DETROIT, MICH., MANUFACTURERS OF RAILWAY VARNISHES.

ESTABLISHED IN 1858.
USE BERRY BROTHERS'
RAILWAY VARNISHES.

Frontage on Wight Street, 218 ft.



Frontage on Lieb Street, 200 ft.

ESTABLISHED IN 1858.
USE BERRY BROTHERS'
RAILWAY VARNISHES.

B. R. MILLER, General Eastern Agent. W. L. EN EARL, General Western Agent.

THE E. D. ALBRO COMPANY,

DIRECT IMPORTERS OF

MAHOGANY

(Via New Orleans),

MANUFACTURED TO SIZES SPECIALLY ADAPTED FOR

CAR-BUILDERS.

MANUFACTURERS OF

VENEERS, CAR-BUILDERS' MATERIAL

FROM DOMESTIC AND FOREIGN WOODS.

685--711 West 6th St., **CINCINNATI, O.**

Estimates and Price Lists Furnished.

NO. 19.
Keystone Single Coil Bolster Spring

Patented Aug. 16th, 1881, and January 3d, 1882.
Capacity, 35000 Pounds Each.
Motion Very Soft and Slow.

KEYSTONE CAR SPRING WORKS.

CHARLES SCOTT,

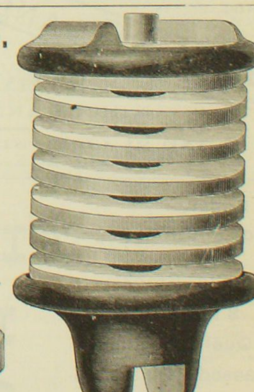
C. T. SCHOEN, Supt. MANUFACTURER OF

RAILWAY CAR SPRINGS,

1028 to 1038 New Market Street,
PHILADELPHIA, PA.

KEYSTONE GRADUATED BOLSTER SPRING.
NO. 17.

Capacity 40000 Pounds Each—Motion Softer than Elliptics.
Patented August 16th, 1881 January 3d and March 21st 1882.



Patented January 3d, 1882.

DIRECTORY

of the Railroads of the United States and Canada, showing the gauge, length of road, number of locomotives and number of cars; and giving the names and titles of their principal officers in charge of the operating, purchasing and rolling stock departments.

A

Adirondack R. R. 4-8½ gauge 60 m. 3 lo. 62 cars.
C. E. Durkee, Supt. ....Saratoga, N. Y.
Jacob Myers, M. M. ....Saratoga, N. Y.
Jas. J. Traver, M. C. B. ....Saratoga, N. Y.
Addison & Northern Penn'a Ry. 3 g. 46 m. 5 lo. 50 c.
F. M. Baker, Gen. Supt. ....Addison, N. Y.
Alabama Great So'n R. R. (See Cin., N. O. & T. P.)
Albany & Susquehanna R. R. (See D. & H. Canal Co.)
Albemarle & Raleigh R. R. 4-8½ g. 33 m. 3 lo. 35 c.
P. Dortsch, Supt. ....Williamston, N. C.
Albert Ry. 4-8½ g. 51 m. 3 lo. 35 cars.
G. A. Robinson, Man. & Pur. Agt. Hillsboro, N. B.
Jas. McKay, M. M. & C. B. ....Hillsboro, N. B.
Alexandria & Fredericksburg Ry. (See Penna. R. R.;
Alexandria & Washington R. R. (7) Div.
Allegheny Valley R. R. 4-9 g. 259 m. 70 lo. 2202 c.
David McCargo, Gen. Supt. & Pur. Agt.; and
C. B. Price, Supt. (Riv. Div.) ....Pittsburg, Pa.
A. A. Jackson, Supt. (L. G. Div.) Reynoldsville, Pa.
Geo. W. Glass, M. M. ....Verona, Pa.
R. Gunning, M. C. B. ....Verona, Pa.
Alliance, Niles & Ashtabula R. R. (See Penna. Co.)
Annapolis & Elk Ridge R. R. 4-8½ g. 20 m. 4 lo. 39 c.
W. H. Bians, Supt. & Pur. Agt. Annapolis, Md.
John L. Beall, M. Mach. ....Annapolis, Md.
Antwerp & Paulding R. R. 4-8½ g. 6 m. 4 lo. 63 c.
E. C. Munson, Gen. Man. ....Antwerp, O.
William Fitzsimmons, Jr., Pur. Agt. Antwerp, O.
Arkansas Midland R. R. 3-6 g. 63 m. 4 lo. 45 cars.
A. H. Johnson, Pr. & Gen. Man. ....Helena, Ark.
J. B. Johnson, M. M. & M. C. B. ....Helena, Ark.
Asheville & Spartanburg R. R. 5 g. 49 m. 2 lo. 12 c.
Jas. Anderson, Supt. & Pur. Agt. Spart'b'g, S. C.
Wm. Platt, M. M. ....Spartanburg, S. C.
W. B. Brown, M. C. B. ....Spartanburg, S. C.
Ashland Coal & Iron Ry. 4-8½ g. 22 m. 7 lo. 432 c.
Douglas Putnam, Jr., Gen. Supt. Ashland, Ky.
Robt. Peebles, Pur. Agt. ....Ashland, Ky.
E. M. Roberts, M. M. ....Ashland, Ky.
Ashtabula & Pittsburgh Ry. (See Penna. Co.)
Atchison, Topeka & Santa Fé R. R.
4-8½ g. 2,620 m. 348 lo. 9,629 cars.
A. E. Touzalin, Gen. Man. ....Topeka, Kan.
Geo. B. Harris, Gen. Man. Asst. ....Topeka, Kan.
A. A. Robinson, Gen. Supt. ....Topeka, Kan.
Geo. Hargraves, Pur. Agt. ....Topeka, Kan.
Geo. Hackney, Supt. Lo. & Car. Dept. do.
Clem. Hackney, Asst. Sup. L. & C. Dept. do.
Eastern Div.: D. J. Chase, Supt. ....Topeka, Kan.
Henry Hull, G. F. Car Dept. ....Topeka, Kan.
John Fagan, M. M. ....Atchison, Kan.
J. M. Smith, M. M. ....Kansas City, Mo.
Alfred Taylor, M. M. ....Emporia, Kan.
Mid. Div.: H. R. Nickerson, Supt. Nickerson, Kan.
W. Y. Johnson, M. M. ....Nickerson, Kan.
J. Q. Adams, M. M. ....Dodge, Kan.
W. Div.: W. W. Borst, Supt. ....La Junta, Col.
A. C. Stiles, M. M. ....La Junta, Col.
D. H. Dotterer, M. M. ....Raton, N. M.
So. Div.: Geo. L. Sands, Supt. ....Las Vegas, N. M.
L. H. Waugh, M. M. ....Las Vegas, N. M.
J. H. Holman, M. M. ....Wallace, N. M.
J. W. Sager, M. M. ....San Marcial, N. M.
H. P. Olcott, M. M. ....Deming, N. M.
Sonora Div.: 265 m.
T. J. Seeley, Asst. Gen. Man. Guaymas, Mex.
Kan. Cy., Law. & So. Kan.
4-8½ g. 399 m. 24 lo. 787 c.
J. L. Barnes, Supt. ....Lawrence, Kan.
T. D. Volk, M. M. ....Ottawa, Kan.
Atlanta & West Point R. R. (See Western of Ala.)
Atlantic & North Carolina R. R. (See Midland (N. C.)
Atlantic, Tenn. & Ohio R. R. (See Rich. & Dan.; (2) Div.)
Atlantic & Pacific R. R. 4-8½ g. 575 m.
F. W. Smith, G. Supt. & P. A. Albuquerque, N. M.
Geo. Chalender, Supt. M. P. & M. and
Geo. Chalender, Div. Supt. Albuquerque, N. M.
D. Hardy, Div. Supt. ....Williams, Ariz.
Augusta & Knoxville R. R. (See Port Royal & Aug.)
Austin & Northwestern R. R. 3 g. 60 m. 4 lo. 80 c.
H. W. McNeill, Gen. Man. ....Austin, Tex.

B

Bachman Valley R. R. (See Han. Junc., Han. & Gett.)
Baltimore & Hanover R. R. (See H. J., H. & G.)
Baltimore & Ohio R. R.
4-8½ g. 1,612 m. 571 lo. 15,897 cars.
S. Spencer, 2d V. P. & Gen. Man. Baltimore, Md.
N. S. Hill, Pur. Agt. ....Baltimore, Md.
E. Ohio Riv. Div. 4-8½ g. 972 m.
W. M. Clements, Mast. Trans. ....Baltimore, Md.
A. J. Cromwell, Ast. M. of M. ....Baltimore, Md.
L. Packard, M. C. B. ....Baltimore, Md.
I. N. Kalbaugh, M. M. ....Baltimore, Md.
Wm. Edwards, M. M. ....Martinsburg, W. Va.
Sam. Houston, M. M. ....Piedmont, W. Va.
Robert Maxwell, M. M. ....Cumberland, Md.
S. B. Crawford, M. M. ....Grafton, W. Va.
Alex. Laird, M. M. ....Parkersburg, W. Va.
Chas. Hirsch, M. M. ....Wheeling, W. Va.
Pitts. Div.: T. M. King, Gen. Supt. ....Pittsburg, Pa.
J. E. Sampsell, Ast. M. of M. Connellsville, Pa.
Trans-Ohio Divs.: B. Dunham, G. Man. Newark, O.
W. H. Harrison, Asst. M. of Mach. Newark, O.
E. L. Weisgerber, M. M. ....Newark, O.
H. M. Ingler, M. M. ....Bellaire, O.
O. B. Perkins, M. M. ....Zanesville, O.
Andrew Beckert, M. M. ....Sandusky, O.
F. J. Gunther, M. M. ....Chicago Junction, O.
Chi. Div. ....Gen. Supt. ....Chicago, Ill.
Benj. Lowther, M. M. ....Garrett, Ind.
W. H. Wilkinson, M. M. ....Kingston, Ill.
Baltimore & Philadelphia. 4-8½ g. 20 m. 4 lo. 35 c.
D. Connell, Supt. ....Wilmington, Del.
Baltimore & Potomac R. R. (See Penna. R. R.; (7) Div.)
Bangor & Piscataquis R. R. 4-8½ g. 63 m. 4 lo. 87 cars.
Arthur Brown, Supt. & Pur. Agt. Bangor, Me.
C. S. Nason, M. M. ....Bangor, Me.
J. W. Comins, M. C. B. ....Oldtown, Me.
Bangor & Portland Ry. 4-8½ g. 25 m. 3 lo. 3 c.
C. Miller, Pres. ....Blairstown, N. J.
Barclay R. R. 4-8½ g. 16 m. 6 l. 200 c.
F. F. Lyon, Supt. ....Barclay, Pa.
J. A. Hardenburg, Pur. Agt. 21 Cort. St., N. Y.
Wm. Johnson, M. M. ....Towanda, Pa.
Batesville & Brinkley R. R. 3 g. 25 m. 2 lo. 34 c.
Wm. Black, Pres. & Gen. Supt. Brinkley, Ark.
W. J. Thompson, Gen. Man. ....Little Rock, Ark.
R. B. Davis, Pur. Agt. ....Brinkley, Ark.
John White, M. M. ....Brinkley, Ark.
Baton Rouge, Grosse Tête & Opelousas R. R.
5-6 g. 29 m. 3 lo. 12 c.
D. C. Montan, Gen. Supt. ....Port Allen, La.
Bedford & Bloomfield Ry. 3 g. 43 m. 5 lo. 65 cars.
Jas. W. Kennedy, Gen. Supt. & Pur. Agt.; and
Capt. Geo. Elliott, M. M. ....Bedford, Ind.
Richard G. Elliott, M. C. B. ....Bedford, Ind.
Bellaire, Zanesville & Cin. Ry. Co. 3 g. 42 m. 5 lo. 71 c.
S. L. Mooney, Gen. Supt. ....Woodsville, O.
J. B. Hong, M. M. ....Bellaire, O.
Bell's Gap R. R. 3 g. 23 m. 4 lo. 148 cars.
R. G. Ford, Supt. ....Bellwood (P. O.), Pa.
A. Zimmerman, M. C. B. ....Bellwood, Pa.
Belt R. R. 4-8½ g. 12 m. 10 lo.
W. P. Ijams, Supt. ....Indianapolis, Ind.
Bennington & Rutland Ry. 4-8½ g. 59 m. 10 lo. 236 c.
F. C. White, Supt. & Pur. Agt. Bennington, Vt.
G. W. Blanchard, M. M. ....Rutland, Vt.
Berlin Branch R. R. (See Han. Junc., Han. & Gett.)
Bingham, Canyon & Camp Floyd (See Den. & Rio Gr.)
Bladen, Columbus & Florida. 4-8½ g. 16 m. 2 lo. 2 c.
John Colville, Pres. ....Wilmington, N. C.
Bodie Lumber Co. 3 g. 34 miles.
Thomas Holt, Supt. & Pur. Agt. ....Bodie, Cal.
E. M. Luckett, M. M. & C. B. ....Bodie, Cal.
Boston, Barre & Gardner. 4-8½ g. 36 m. 8 lo. 108 c.
H. M. Witter, G. Man. & P. A. ....Worcester, Mass.
Chas. F. Brigham, M. M. ....Worcester, Mass.
Boston, Concord, Montreal & White Mts. R. R.
4-8½ g. 167 m. 40 lo. 1,116 cars.
W. A. Stowell, Supt. ....Plymouth, N. H.
Geo. W. Storer, Pur. Agt. ....Boston, Mass.
R. Adams, M. M. ....Lake Village, N. H.
G. A. Ferguson, Asst. M. M. ....Lake Village, N. H.
L. D. Pickering, M. C. B. ....Lake Village, N. H.
Whitefield & Jefferson Div.:
A. L. Brown, Supt. ....Whitefield, N. H.
Boston, Hoosac Tunnel & W'n Ry.
4-8½ g. 87 m. 18 lo. 1,038 cars.
H. L. Morrill, Gen. Man. ....Saratoga, N. Y.
J. H. Wilder, Pur. Agt. ....Mechanicville, N. Y.
C. H. Cory, Supt. & M. M. ....Mechanicville, N. Y.
John S. Ellis, M. C. B. ....Mechanicville, N. Y.
Boston, Revere Beach & Lynn R. R. 3 g. 9 m. 7 lo. 46 c.
C. A. Hammond, Supt. & P. Agt. Boston, Mass.
L. C. Legro, M. of Trans. ....Boston, Mass.
J. L. Folsom, M. M. ....Boston, Mass.
John Cozglan, M. C. B. ....Boston, Mass.
Boston, Winthrop & Point Shirley R. R.
3 g. 10 m. 1 lo. 8 c.
C. A. Parks, Gen. Supt. ....Boston, Mass.
F. W. Parks, M. M. ....Boston, Mass.
Boston & Albany R. R. 4-8½ g. 372 m. 245 lo. 6,111 c.
W. H. Barnes, Gen. Supt. ....Boston, Mass.
E. Gallup, Asst. Supt. ....Springfield, Mass.
A. B. Underhill, Supt. M. P. ....Springfield, Mass.
F. D. Adams, G. m. M. C. B. ....Allston, Mass.
H. H. Chesley, Div. Supt. ....Boston, Mass.
G. H. Colby, Div. M. M. ....Boston, Mass.
C. E. Grover, Div. Supt. ....Springfield, Mass.
H. W. Eddy, Div. M. M. ....Springfield, Mass.
J. B. Weston, For. Car Sh. Springfield, Mass.
W. H. Russell, Jr., Div. Supt. E. Albany, N. Y.
T. H. Harris, Div. M. M. ....East Albany, N. Y.
J. E. Doran, For. Car Sh. ....East Albany, N. Y.
Boston & Lowell R. R.
4-8½ g. 149 m. 73 lo. 1,231 cars.
C. H. Mellen, Supt. ....Boston, Mass.
F. H. Nourse, Pur. Agt. ....Boston, Mass.
J. F. Crockett, Supt. T. & Mach. Boston, Mass.
Boston & Maine R. R. 4-8½ g. 206 m. 89 lo. 2,100 c.
J. T. Furber, Gen. Supt. & P. A. ....Boston, Mass.
Geo. J. Fisher, Pur. Agt. ....Boston, Mass.
Wm. Smith, M. M. ....Boston, Mass.
D. C. Richardson, M. C. B. ....Lawrence, Mass.
Boston & N. Y. Air Line R. R. (See N. Y., N. H. & H.)
Boston & Providence R. R. 4-8½ g. 67 m. 52 lo. 1,006 c.
A. A. Folsom, Gen. Supt. & P. A. Boston, Mass.
Geo. Richards, M. M. ....Roxbury, Mass.
Jno. Lightner, M. C. B. ....Roxbury, Mass.
Bowling Green R. R. 4-8½ g. 6 m. 2 lo. 4 c.
Wm. A. Wiggins, Gen. Man. Bowling Green, O.
D. W. H. Day, Pur. Agt. ....Bowling Green, O.
Bradford, Bordell & Kinzua R. R. 3 g. 42 m. 6 lo. 82 c.
Bradford, Eldred & Cuba. 3 g. 54 m. 6 l. 158 c.
Tonawanda Valley & Cuba. 3 g. 60 m. 6 lo. 31 c.
R. G. Taylor, Gen. Man. of P. ....Bradford, Pa.
B. C. Wilcox, G. S. (B. B. & K. Rd.) Brad'fd, Pa.
C. D. Williams, S. (B. E. & C. Rd.) Wellsville, N. Y.
Jno. Delaney, M. M. & C. B. ....Bradford, Pa.
Brattleboro' & Whitehall R. R. 3 g. 36 m. 3 lo. 56 c.
(Operated by Central Vermont.)
Breakwater & Frankford R. R. (See Del., Md. & Va.)
Bridgton & Saco River R. R. 2 g. 16 m. 2 lo. 19 c.
Geo. E. Mansfield, Gen. Supt. ....Bridgton, Me.
M. M. Caswell, M. M. ....Bridgton, Me.
Brighthope Ry. 3 g. 37 m. 4 lo. 103 cars.
Jas. R. Worth, Supt. ....Richmond, Va.
E. B. Thaxe, Pur. Agt. ....Richmond, Va.
A. Gary, Supt. Way & Works. Winterpock, Va.
Alex. Calder, M. M. ....Chester, Va.
Brooklyn, Bath & Coney Island R. R.
4-8½ g. 7 m. 6 lo. 36 cars.
Geo. A. Gunther, Gen. Man. ....Brooklyn, N. Y.
Isaac G. Ring, M. M. ....Brooklyn, N. Y.
Brooklyn, Flatbush & Coney Island Ry.
4-8½ g. 7 m. 7 lo. 54 c.
Robert White, Supt. ....Brooklyn, N. Y.
Brooklyn & Rockaway Beach R. R.
4-8½ g. 3 m. 2 lo. 18 cars.
Wm. Warner, Supt. ....East New York, N. Y.
Brunswick & Western R. R. 5 g. 172 m. 13 lo. 179 c.
H. S. Morse, Gen. Man. ....Brunswick, Ga.
R. D. Mosher, Supt. ....Brunswick, Ga.
W. K. Wallace, Pur. Agt. ....Brunswick, Ga.
Buff., N. Y. & Phil. R. R. 3 & 4-8½ g. 655 m. 120 l. 6,339 c.
Oliver Watson, Gen. Man. ....Buffalo, N. Y.
Geo. S. Gatchell, Gen. Supt. ....Buffalo, N. Y.
W. W. Halsey, Asst. to G. Supt. Buffalo, N. Y.
J. H. Poole, Pur. Agt. ....Buffalo, N. Y.
Allen Vail, Supt. M. P. & M. ....Buffalo, N. Y.
Buff. Div.: J. T. Gardiner, Supt. ....Buffalo, N. Y.
Roch. Div.: R. M. Patterson, Supt. Rochester, N. Y.
N. G. Div.: J. W. Watson, Supt. ....Olean, N. Y.
Riv. Div.: A. Vandivort, Supt. ....New Castle, Pa.
Pitts. Div.: E. H. Wilter, Supt. ....Oil City, Pa.
H. J. Bookhammer, M. M. ....Oil City, Pa.
John Monks, M. C. B. ....Oil City, Pa.
Burlington, Cedar Rapids & Northern Ry.
4-8½ g. 713 m. 76 lo. 2,813 cars.
C. J. Ives, Gen. Supt. ....Cedar Rapids, Ia.
Robt. Williams, Supt. ....Cedar Rapids, Ia.
T. Stickney, Pur. Agt. ....Cedar Rapids, Ia.
R. W. Bushnell, M. M. & C. B. Cedar Rapids, Ia.
Burlington & Lamoille R. R. 4-8½ g. 35 m. 4 lo. 64 c.
G. L. Linsley, Gen. Man. & Supt. Burlington, Vt.
F. G. Brownell, M. M., M. C. B. & P. A. do.
Burlington & Mo. Riv. R. R. (in Neb.) (See C. B. & Q.)
Burlington & North-West'n Ry. 3 g. 38 m. 3 lo. 97 c.
Burlington & Western R. R. 3 g. 15 m. 38 c.
John T. Gerry, Supt. ....Burlington, Ia.
Burlington & Ohio River R. R. 4-8½ g.
R. Tanner, Pur. Agt. ....Chicago, Ill.

C

California Northern R. R. 4-8½ g. 26 m. 2 lo. 17 c.
Andrew J. Binney, Gen. Man. ....Marysville, Cal.
California Southern R. R. 4-8½ g. 127 m. 13 lo. 301 c.
E. W. Victor, Supt. ....National City, Cal.
Berkley Powell, Mech. Supt. National City, Cal.
Cambridge & Seaford. (See Penna. R. R.; (4) Div.)
Camden & Atlantic R. R. (See Penna. R. R.; (2) Div.)
Canada Southern Ry. (See Mich. Cen.; (2) Div.)
Canada & Atlantic Ry. 4-8½ g. 80 m.
D. C. Linsley, Man. ....Ottawa, Ont.
Canadian Pacific R. R. 4-8½ g. 1,742 m. 118 l. 2,726 c.
W. C. Van Horne, Gen. Man. ....Montreal, Que.
W. R. Baker, Asst. Gen. Man. ....Winnipeg, Man.
K. Blackwell, Mech. Supt. ....Montreal, Que.
T. W. Shaughnessy, Pur. Agt. ....Montreal, Que.
E. Div.: Archer Baker, Gen. Supt. Montreal, Can.
Tho. Irwin, Mech. Supt. ....Brockville, Ont.
W. Div.: J. M. Egan, Gen. Supt. ....Winnipeg, Man.
F. C. Butterfield, M. M. & M. C. B. Winnipeg, Man.
Cape F'r & Yadkin Val. R. R. 4-8½ g. 47 m. 4 lo. 44 c.
J. S. Morrison, Gen. Supt. ....Fayetteville, N. C.
Isaac W. Clark, M. M. & C. B. Fayetteville, N. C.
Cape Girardeau Southwestern Ry.
4-8½ g. 33 m. 3 lo. 30 cars.
Louis Houck, Gen. Man. ....Cape Girardeau, Mo.
W. A. Penney, Gen. Supt. Cape Girardeau, Mo.
W. H. Wheeler, Pur. Agt. Cape Girardeau, Mo.
Fred Glover, M. M. ....Cape Girardeau, Mo.
Carolina Central R. R. (See Ral. & Aug.)
Carson & Colorado R. R. (See Va. & Truckee.)
Catasauqua & Fogelsville. 4-8½ g. 25 m. 6 lo. 581 c.
C. W. Chapman, Supt. & P. A. Catasauqua, Pa.
J. Thomas, M. M. ....Hokendauqua, Pa.
Chas. J. Holbach, M. C. B. ....Catasauqua, Pa.
Catskill Mountain R. R. 3 g. 15 m. 2 lo. 26 cars.
Charles A. Beach, Supt. ....Catskill, N. Y.
Cazenovia, Canastota & De Ruyter. (See U., I. & E.)
Central and South-Western Railroads (Ga.).
5 g. 1,115 m. 145 lo. 2,608 cars.
W. G. Raoul, Pres. ....Savannah, Ga.
Wm. Rogers, Gen. Supt. ....Savannah, Ga.
T. H. Carson, Pur. Agt. ....Savannah, Ga.
Cen. Div.: D. D. Arden, M. M. ....Savannah, Ga.
........Augusta, Ga.
F. Devine, M. C. B. ....Savannah, Ga.
So.-West'n Div.: T. D. Kline, Supt. ....Macon, Ga.
D. M. Gugel, M. M. ....Macon, Ga.
James A. Knight, M. C. B. ....Macon, Ga.
Central R. R. of N. J. (See Phil. & Read.; N. J. Cen. Div.)
Central R. R. of S. C. (See Wil. & Wel.)
Central American & Pacific Ry. 3 g. 67 m. 1 lo. 11 c.
W. C. Fitzsimmons, Gen. Supt. Escuintla, Guat.
Central Branch Union Pac. (See Mo. Pac.; (3) Div.
Central Iowa Ry. 4-8½ g. 412 m. 50 lo. 1,959 cars.
C. E. Dudley, Gen. Supt. ....Marshalltown, Ia.
D. P. Phelps, Asst. Gen. Sup. Marshalltown, Ia.
W. R. Coppock, Asst. Pur. Agt. Marshalltown, Ia.
John Player, M. M. ....Marshalltown, Ia.
T. L. Seevers, M. C. B. ....Marshalltown, Ia.
Central Ontario Ry. 4-8½ g. 33 m. 4 lo. 66 cars.
G. W. McMullen, Gen. Man. ....Picton, Ont.
James Falconar, M. M. ....Trenton, Ont.
Central Pac. R. R. 4-8½ g. 4,303 m. 382 lo. 11,260 c.
A. N. Towne, Gen. Man. ....San Francisco, Cal.
J. A. Fillmore, Gen. Supt. ...San Francisco, Cal.
R. H. Pratt, A. G. Supt. ....San Francisco, Cal.
J. R. Watson, Gen. Pur. Agt. Sacramento, Cal.
A. J. Stevens, Gen. M. M. ....Sacramento, Cal.
W. McKenzie, Asst. G. M. M. Sacramento, Cal.
Benj. Welch, Gen. M. C. B. ....Sacramento, Cal.
G. J. Turner, Asst. G. M. C. B. Sacramento, Cal.
Western: Visalia & Tulare Divs. and Northern Ry.
A. D. Wilder, Supt. ....W. Oakland, Cal.
G. D. Welch, M. M. (W. Div.) W. Oakland, Cal.
W. B. Ludlow, M. C. B. (W. Div.) do.
S. Johnson, M. M. (T. Div.) ....Tulare, Cal.
D. Rutherford, M. M. (N. Rd.) S. Vallejo, Cal.
Sacramento; Oregon Divs.; and Cal. Pac. R. R.
J. B. Wright, Supt. ....Sacramento, Cal.
M. W. Cooley, M. M. (S. Div.) Sacramento, Cal.
Truckee Div.: J. H. Whited, Supt. Wadsworth, Nev.
Geo. Gregg, M. M. ....Wadsworth, Nev.
Wm. McPherson, F. Car Sh. Wadsworth, Nev.
Humb't Div.: G. W. Coddington, Supt. Carlin, Nev.
W. F. Smith, M. M. ....Carlin, Nev.
J. C. Doughty, For. Car Sh. ....Carlin, Nev.
Salt Lake Div.: A. G. Fell, Supt. ....Ogden, Utah.
James Lamb, M. M. ....Terrace, Utah.
A. Sherburne, For. Car Sh. ....Ogden, Utah.
Colorado Div.: C. B. Seymour, Supt. Needles, Cal.
St. & Cop. R. R.: R. L. Myrick, Supt. Stockton, Cal.
Los Angeles; and Yuma Divs. (So. Pac.):
E. E. Hewitt, Asst. Supt. ....Los Angeles, Cal.
James Velsir, M. M. ....Los Angeles, Cal.
T. T. Gilleland, For. Car Sh. Los Angeles, Cal.
Arizona Divs. (So. Pac.):
A. A. Bean, Asst. Supt. ....Tucson, Ariz.
W. F. Smith, M. M. ....Tucson, Ariz.
Rio Grande (S. Pac.) & El Paso (G. H. & S. A.) Divs.:
J. Campbell, Ass't Supt. ....El Paso, Texas.
J. L. Bonner, M. M. ....El Paso, Texas.
H. C. Standish, For. Sh. ....El Paso, Texas.
Galveston, Harrisburg & San Antonio Ry.
E. G. Thompson, Supt. ....Houston, Tex.
San Anto. Div.: W. G. Van Vleck, Supt., and
J. J. Ryan, M. M. ....San Antonio, Tex.
Houston Div.: H. Flanders, Supt. Harrisburg, Tex.
D. T. Davis, M. M. ....Harrisburg, Tex.
Louisiana Div.: W. Irwin, Supt. ....Houston, Tex.
D. C. Smith, M. M. ....Houston, Tex.
J. M. Mather, M. C. B. ....Houston, Tex.
Central Texas & N'w'n R. R. (See Hous. & Tex. Cen.)
Central Vermont R. R. 4-8½ g. 673 m. 136 lo. 2,789 c.
J. W. Hobart, Gen. Supt. ....St. Albans, Vt.
J. M. Foss, Asst. Gen. Supt. & M. M. St. Albans, Vt.
No. Div.: I. B. Futvoye, Supt. ....St. Johns, P. Q.
Rut. Div.: J. Burdett, Supt. ....Rutland, Vt.
N. L. Davis, M. M. & C. B. ....Rutland, Vt.
Brattleboro & Whitehall R. R., and
Brat. Div.: E. F. Brooks, Supt. ...Brattleboro, Vt.
New London No'n R. R. 143 m. 22 lo. 303 c.
C. F. Spaulding, G. Supt. & P. A. New London, Ct.
I. W. Dow, M. M. ....New London, Ct.
S. O. Banks, M. C. B. ....New London, Ct.
Chagrin Falls & Southern R. R. 3 g. 6 m. 1 lo. 12 c.
W. Hutchings, Gen. Man. ....Chagrin Falls, O.
J. W. Williams, Gen. Supt. ....Chagrin Falls, O.
Charleston & Savannah Ry. 5 g. 115 m. 17 lo. 108 c.
H. S. Haines, Gen. Man. ....Savannah, Ga.
C. S. Gadsden, Gen. Supt. ....Charleston, S. C.
H. A. Ulmo, M. M. ....Savannah, Ga.
Charlotte, Columbia & Augusta R. R. (See Rich. & D.)
Chateaugay R. R. 3 g. 34 m. 6 lo. 312 cars.
A. L. Inman, Gen. Man. ....Plattsburg, N. Y.
F. N. Corbin, Supt. ....Plattsburg, N. Y.
J. M. Davis, M. M. ....Plattsburg, N. Y.
Chattaroi Ry. 4-8½ g. 51 miles 11 loco. 483 cars.
C. H. Rockwell, Gen. Man. & P. A. Ashland, Ky.
J. R. Martin, M. M. ....Ashland, Ky.
Joseph P. Burleigh, M. C. B. ....Ashland, Ky.
Cheraw & Chester R. R. (See Rich. & Dan.; (2) Div.)
Cheraw & Darlington R. R. (See Wil. & Wel.)
Cheraw & Salisbury R. R. (See Wil. & Wel.)
Cherokee R. R. (See East & West.)
Cherry Valley R. R. 4-8½ g. 6 m. 3 lo. 6 cars.
E. T. Herndon, Supt. ....Midland, Mo.
Chesapeake, Ohio & South-Western.
4-9 g. 398 m. 47 lo. 1,339 c.
D. W. C. Brown, Gen. Supt. ....Louisville, Ky.
H. E. Huntington, Pur. Agt. ....Louisville, Ky.
J. E. Reeves, Mast. Trans. ....Louisville, Ky.
R. H. Briggs, Supt. M. P. ....Elizabethtown, Ky.
D. L. Weaver, M. M. ....Elizabethtown, Ky.
Chas. Daniels, M. M. ....Paducah, Ky.
Chesapeake & Ohio Ry. 4-8½ g. 642 m. 169 l. 5,120 c.
C. W. Smith, Gen. Man. ....Richmond, Va.
D. A. Sweet, Asst. to Gen. Man. Richmond, Va.
A. H. Wood, Asst. Gen. Supt., Huntington, W. Va.
A. S. Emmons, Pur. Agt. ....Richmond, Va.
T. L. Chapman, Supt. M. P. ....Richmond, Va.
Eastern Div.: E. T. Smith, Supt. Richmond, Va.
J. N. King, M. C. B. ....Richmond, Va.
Hunt. Div.: W. B. Ryder, Supt. ....Hinton, W. Va.
W. H. Thomas, M. M. ..Huntington, W. Va.
H. C. Bassinger, M. C. B. Huntington, W. Va.
Lex. Div.: J. D. Yarrington, Supt. Lexington, Ky.
S. R. Tuggle, M. M. ....Lexington, Ky.
Cheshire R. R. 4-8½ g. 80 m. 30 lo. 522 cars.
R. Stewart, Gen. Man. ....Keene, N. H.
H. H. Stone, Pur. Agt. ....Keene, N. H.
F. A. Perry, M. M. ....Keene, N. H.
A. E. Howard, M. C. B. ....Keene, N. H.
Chester & Lenoir Ry. (See Rich. & Dan.; (3) Div.)
Chicago, Bur. & Kan. City Ry. (See C. B. & Q.)
Chicago, Burlington & Quincy R. R.
4-8½ g. 3,608 m. 545 lo. 21,012 cars.
T. J. Potter, Gen. Man. ....Chicago, Ill.
(1) C., B. & Q., East of Mo. Riv.
H. B. Stone, Asst. Gen. Man. ....Chicago, Ill.
Wm. Irving, Gen. Pur. Agt. ....Chicago, Ill.
G. W. Rhodes, Supt. M. P. ....Aurora, Ill.
Wm. Forsyth, Mech. Eng. ....Aurora, Ill.
Ill. Divs.: J. D. Besler, Supt. ....Galesburg, Ill.
Chi. Div.: Geo. Alexander, Supt. ....Aurora, Ill.
L. E. Johnson, M. M. ....Aurora, Ill.
Galesburg Div.: F. C. Rice, Supt. Galesburg, Ill.
Robert Colville, M. M. ....Galesburg, Ill.
St. L. Div.: S. E. Crance, Supt. Beardstown, Ill.
A. Forsyth, M. M. ....Beardstown, Ill.
Ia. & Mo. Divs.: W. F. Merrill, Supt. Burlington, Ia.
East. Div.: O. E. Stewart, Supt. Burlington, Ia.
Joel West, M. M. ....Burlington, Ia.
Mid. Div.: J. B. Maxon, Supt. ....Ottumwa, Ia.
West'n Div.: W. B. Ryder, Supt. ....Creston, Ia.
C. W. Eckerson, M. M. ....Creston, Ia.
Chi., B. & Kan. C'y and St. L., Keo. & No.-W'n Rys.
Robt. Law, Gen. Supt. ....Keokuk, Ia.
W. H. Bartlett, M. M. ....Burlington, Ia.
(2) C., B. & Q., West of Mo. Riv.
G. W. Holdrege, Asst. Gen. Man. Omaha, Neb.
Jas. M. Barr, Supply Agt. ....Omaha, Neb.
D. Hawksworth, Gen. M. M. Plattsmouth, Neb.
Bur. & Mo. Riv. & Neb. Ry. Divs.:
D. E. Thompson, Supt. ....Lincoln, Neb.
E. Bignal, M. M. ....Lincoln, Neb.
R. V. Div.: A. Campbell, Supt. ....McCook, Neb.
A. & N. Div.: J. McConniff, Supt. Lincoln, Neb.
Chicago, Milwaukee & St. Paul R. R.
4-8½ g. 4,528 m. 626 lo. 19,018 cars.
S. S. Merrill, Gen. Man. ....Milwaukee, Wis.
J. T. Clark, Gen. Supt. ....Milwaukee, Wis.
J. T. Crocker, Pur. Agt. ....Milwaukee, Wis.
J. M. Lowry, Gen. M. M. ....Milwaukee, Wis.
E. Fairbairn, M. M. ....Milwaukee, Wis.
John Baillie, Supt. Car Dept. Milwaukee, Wis.
(1) H. C. Atkins, Asst. Gen. Supt. Milwaukee, Wis.
Chi. Div.: Geo. O. Clinton, Supt. ....Chicago, Ill.
La Crosse Div.: W. G. Collins, Supt. Milwaukee, Wis.
C. Bluffs Div.: A. J. Earling, Supt. ....Marion, Ia.
P. du C. & M. Pt. Divs.:
R. B. Campbell, Supt. ....Milwaukee, Wis.
(2) C. H. Prior, Asst. Gen. Supt. Minneapolis, Minn.
H. & D. Div.: M. W. Kellie, Supt. do.
J. O. Pattie, M. M. ....Minneapolis, Minn.
Ia. & Minn. Div.: H. R. Williams, Supt. do.
S. Minn. Div.: F. D. Underwood, Supt. Lacrosse, Wis.
Riv. & Dub. Divs.: C. W. Case, Supt. Dubuque, Ia.
S. Charnley, M. M. ....Dubuque, Ia.
Ia. & Da. Div.: G. W. Sanborn, Supt. Mason City, Ia.
S. Cy. & Da. Div.: J. Jackson, Supt. Sioux City, Ia.
F. H. Moulton, M. M. ....Yankton, Dak.
(3) D. A. Olin, Asst. Gen. Supt. ....Racine, Wis.
So.-Wn. Divs.: D. L. Bush, Supt. ....Racine, Wis.
John Taylor, M. M. ....Racine, Wis.
E. A. Eddy, M. C. B. ....Racine, Wis.
(4) Northern Div.: L. B. Rock, Supt. Milwaukee, Wis.
Wm. E. Kittredge, M. C. B. ..Milwaukee, Wis.
Chicago, Pekin & So-Wn. R. R. 4-8½ g. 88 m. 11 lo. 471 c.
A. H. Crocker, Rec. ....Joliet, Ill.
J. N. Chilson, M. C. B. ....Streator, Ill.
Chicago, Rock Island & Pac. Ry.
4-8½ g. 1,381 m. 309 lo. 8,367 cars.
R. R. Cable, V. P. & Gen. Man. ....Chicago, Ill.
A. Kimball, Gen. Supt. ....Chicago, Ill.
H. F. Royce, Asst. G. Supt. ....Davenport, Ia.
F. A. Marsh, Pur. Agt. ....Chicago, Ill.
T. B. Twombly, Gen. M. M. ....Chicago, Ill.
B. K. Verbryck, Gen. M. C. B. ....Chicago, Ill.
Ill. Div.: R. H. Chamberlin, Supt. ....Chicago, Ill.
R. Biester, M. M. ....Chicago, Ill.
Sam'l Pullman, M. C. B. ....Chicago, Ill.
Ia. Divs.: Jno. Given, Supt. ....Des Moines, Ia.
J. G. Crockett, M. M. ....Stuart, Ia.
Jas. E. Morrill, M. M. ....Davenport, Ia.
Chas. M. Leonard, M. C. B. ....Davenport, Ia.
K. & Des. M. Div.: Jno. Given, Supt. DesMoines, Ia.
S. W. Wakefield, M. M. ....Keokuk, Ia.
Henry Kummer, M. C. B. ....Keokuk, Ia.
So.-Wn. Div.: G. F. Walker, Supt. ....Trenton, Mo.
R. O. Carscadin, M. M. ....Trenton, Mo.
Chas. R. Best, M. C. B. ....Trenton, Mo.
Chicago, Saginaw & Canada R. R. (See Det., L. & N.)
Chicago, St. Louis & New Orleans R. R. (See Ill. Cen.)
Chicago, St. Louis & Pittsburg R. R. (See Penna. Co.)
Chicago, St. Paul, Minneapolis & Omaha Ry.
4-8½ g. 1,256 m. 181 lo. 5,221 cars.
J. M. Whitman, Gen. Supt. ....St. Paul, Minn.
W. H. S. Wright, Pur. Agt. ....St. Paul, Minn.
Matt. Ellis, M. M. ....St. Paul, Minn.
H. L. Preston, M. C. B. ....Hudson, Wis.
Ea. & No. Div.: A. A. Hobart, Supt. St. Paul, Minn.
St. Paul and Sioux City Div.:
H. Spencer, Supt. ....St. James, Minn.
H. C. Anderson, Gen. For. Sh. ....Sioux Cy, Ia.
Neb. Div.: Geo. V. Morford, Supt. ....Omaha, Neb.
Chic., Tex. & Mexican Cent. Ry. (See Gulf, C. & S. F.)
Chicago & Alton R. R. 4-8½ g. 849 m. 213 lo. 6,168 c.
C. H. Chappell, Gen. Man. ....Chicago, Ill.
W. F. Merrill, Gen. Supt. ....Chicago, Ill.
A. V. Hartwell, Pur. Agt. ....Chicago, Ill.
Wm. Wilson, Supt. of Mach. ....Bloomington, Ill.
Jos. Townsend, G. For. Car Dept. do.
Chi. Div.: A. M. Richards, Supt. ..Bloomington, Ill.
St. Louis Div.: S. D. Reeves, Supt. ..Roodhouse, Ill.
Wm. McPhail, M. M. ....Slater, Mo.
Chicago & Atlantic Ry. 4-8½ g. 269 m.
J. Condit Smith, Gen. Man. ....Chicago, Ill.
J. C. Williams, Gen. Supt. ....Chicago, Ill.
J. F. McPherson, Pur. Agt. ....Chicago, Ill.
R. C. Ackley, M. M. ....Chicago, Ill.
J. L. Adams, M. C. B. ....Chicago, Ill.
West. Div.: J. H. Parsons, Supt. ....Chicago, Ill.
East. Div.: J. H. Tinney, Supt. ..Huntington, Ind.
Chi. & East'n Ill. 4-8½ g. 252 m. 56 lo. 3,500 cars.
O. S. Lyford, Gen. Supt. ....Chicago, Ill.
D. R. Patterson, Pur. Agt. ....Chicago, Ill.
P. W. Drew, M. Trans. ....Chicago, Ill.
Allen Cooke, M. M. ....Danville, Ill.
Chicago & Grand Trunk Ry. (See Grand Trunk.)
Chicago & Great Southern Ry.
4-8½ g. 124 m. 4 lo. 122 c.
Henry Crawford, Gen. Man. ....Chicago, Ill.
H. Crawford, Jr., Supt. ....Chicago, Ill.
Chicago & Iowa R. R. 4-8½ g. 104 m. 16 lo. 237 cars.
T. J. Potter, Gen. Man. ....Chicago, Ill.
W. H. Holcomb, Gen. Supt. ....Rochelle, Ill.
H. S. Bryan, M. M. ....Aurora, Ill.
Chicago & Northwestern Ry.
4-8½ g. 3,610 m. 558 lo. 18,685 cars.
Marvin Hughitt, 2d V. Prs. & G. M. Chicago, Ill.
J. D. Layng, Gen. Supt. ....Chicago, Ill.
R. W. Hamer, Pur. Agt. ....Chicago, Ill.
Geo. W. Tilton, Supt. M. P. & M.; and
J. M. Boon, A. Supt. M. P. & M. ..Chicago, Ill.
Wis. and Mil. Divs. & Sheboygan & W'n Ry.:
Chas. D. Gorham, Supt. ....Chicago, Ill.
Gal. Div.: Chas. Murray, Supt. ....Chicago, Ill.
Pen'a Div.: W. B. Linsley, Supt. ..Escanaba, Mich.
Geo. H. White, M. M. ....Escanaba, Mich.
Mad. Div.: C. A. Swineford, Supt. ..Baraboo, Wis.
Minn. & Dak. Divs.: S. Sanborn, Asst. Gen. Supt.
and W. A. Scott, M. M. ....Winona, Minn.
Dak. Cen. Ry.: J. S. Oliver, Supt. ....Huron, Dak.
Ia. Div.: H. G. Burt, Supt. ....Boone, Ia.
Geo. W. Lowe, M. M. & M. C. B. Clinton, Ia.
No. Ia. Div.: M. Hopkins, Supt. ..Eagle Grove, Ia.
Chicago & West Michigan:
4-8½ g. 409 m. 43 lo. 1,345 cars.
Geo. C. Kimball, V. P. & G. Man. Muskegon, Mich.
A. M. Nichols, Asst. Gen. Supt. Gd. Rapids, Mich.
Edw. Hill, Pur. Agt. ....Muskegon, Mich.
W. F. N. Davis, M. M. ....Muskegon, Mich.
Chicago & West'n Ind. R. R. 4-8½ g. 51 m. 12 lo. 150 c.
James Walsh, Gen. Man. ....Chicago, Ill.
Cincinnati, Columbus & Hocking Val. Ry.
4-9 g. 25 m. 2 lo. 77 cars.
D. P. Hyatt, Gen. Man. ....Dayton, O.
Cin., Georgetown & Portsmouth. 3 g. 35 m. 3 lo. 45 c.
M. Simmons, Supt. ....Cincinnati, O.
J. C. Homer, M. M. ....Cincinnati, O.
Cin., Green Riv. & Nashville R. R. 3 g. 11 m. 2 l. 41 c.
A. C. Sim, Supt. ....King's Mountain, Ky.
G. Brashears, Pur. Agt. ....Cincinnati, O.
Cin., Hamilton & Dayton R. R. 4-9 g. 352 m. 92 l. 2,932 c.
C. J. Hepburn, Gen. Supt. ....Cincinnati, O.
P. Hickey, Pur. Agt. ....Cincinnati, O.
John Black, Gen. M. M. ....Lima, O.
W. H. H. Allison, M. C. B. ....Cincinnati, O.
Day. & Mich. Div.: W. F. Stark, Supt. Toledo, O.
C. R. & C. Div.: W. S. Brewer, M. M. Richm'd, Ind.
Cincinnati, Indianapolis, St. Louis & Chicago Ry.
4-8½ g. 384 m. 71 lo. 3,279 cars.
J. W. Sherwood, Supt. ....Indianapolis, Ind.
Geo. Tozzer, Pur. Agt. ....Cincinnati, O.
J. S. Patterson, M. of Mach. & M. C. B. Cinc'nn., O.
Cincinnati, New Orleans & Texas Pacific Ry. Co.
5 g. 846 m. 123 lo. 3,464 cars.
John Scott, Gen. Man. ....Cincinnati, O.
Richard Carroll, Gen. Supt. ....Cincinnati, O.
R. W. Healey, Gen. Pur. Agt. ....Cincinnati, O.
James Meehan, Gen. M. M. ....Cincinnati, O.
Cin. So. Div.: W. W. Wells, Supt. ..Somerset, Ky.
I. W. Fowle, M. M. ....Cincinnati, O.
John Richardson, M. C. B. ....Cincinnati, O.
A. Thomson, M. M. ....Chattanooga, Tenn.
Ala. Gr. S'n Div.: C. B. Wallace, Supt., and
George Manuell, M. M. ....Chattanooga, Tenn.
Fred Morgan, M. C. B. ..Chattanooga, Tenn.
V. & M. Div.: E. F. Raworth, Supt. and
James B. Browne, M. M. ....Vicksburg, Miss.
V., S. & P. Div.: F. Y. Dabney, Supt. ..Monroe, La.
W. Bell Smith, M. M. & C. B. ....Monroe, La.
New Orleans & North-Eastern R. R.
T. S. Williams, Supt. ....New Orleans, La.
Cincinnati Northern Ry. (See Tol., Cin. & St. L.)
Cincinnati, Selma & Mobile R. R. 5 g. 71 m. 6 lo. 148 c.
D. McLaren, Supt. ....Selma, Ala.
H. L. Wright, Pur. Agt. ....Selma, Ala.
J. M. Lewis, M. M. ....Marion, Ala.
Cincinnati, Van Wert & Michigan R. R.
4-9 g. 39 m. 4 lo. 64 cars.
E. C. Dawes, Gen. Supt. ....Cincinnati, O.
Cin., Wabash & Mich. Ry. 4-8½ g. 165 m. 13 lo. 402 c.
Norman Beckley, Gen. Man. & P. A. Elkhart, Ind.
O. W. Lamport, Supt. ....Wabash, Ind.
S. B. Tinker, M. M. & M. C. B. ....Wabash, Ind.

Cin., Wash. & Balt. 4-8½ g. 312 m. 65 lo. 1,422 cars.
Jas. H. Stewart, *Gen. Man.*...Cincinnati, O.
Edw. Evans, *M. M.*...Chillicothe, O.
T. G. Duncan, *Supt. Car Dept.*...Zaleski, O.
Cincinnati, Wheeling & New York R.R. 4-8½ g. 13 m.
Thos. R. Sharp, *Pres.*...New York, N. Y.
Cincinnati & Eastern Ry. 3 g. 100 m. 7 lo. 133 cars.
S. Woodward, *Gen. Man.*...Cincinnati, O.
G. H. Wilber, *Gen. Sup. & Pur. Agt.* Cincinnati, O.
P. W. Naughton, *M. M.*...Newtown, O.
Cincinnati & South-Eastern Ry. 4-8½ g. 18 m.
John Y. Patton, *Gen. Man.*...Newport, Ky.
Clarksburg, Weston & Glenville R. R.
3 g. 26 m. 3 lo. 45 cars.
A. H. Kunst, *Pres. & Gen. Man.* Weston, W. Va.
Sam. A. Steel, *M. M.*...Weston, W. Va.
F. Dillie, *M. C. B.*...Nottingham, O.
Cleveland, Columbus, Cincinnati & Indiana and Indianapolis & St. Louis Rys. and Bellefontaine Union R. R. 4-8½ g. 785 m. 246 lo. 7,988 cars.
E. B. Thomas, *Gen. Man.*...Cleveland, O.
J. L. Yale, *Pur. Agt.*...Cleveland, O.
W. F. Turreff, *Gen. M. M.*...Cleveland, O.
Col. & Cin. Div.: Robt. Blee, *Supt.* Cleveland, O.
W. L. Gilmore, *M. M.*...Cleveland, O.
A. G. Steinbrenner, *G. For. Car Dept.* do.
W. W. Wallace, *Div. M. M.*...Delaware, O.
Ind'p'lis Div.: John O. Ewan, *Supt.* Ind'polis, Ind.
J. K. Lape, *M. M.*...Brightwood, Ind.
N. Mark, *G. For. Car Dept.* Brightwood, Ind.
Ind. & St. L. Ry.: Tho. Burrows, *Supt.* St. Louis, Mo.
T. W. Ranson, *M. M. & C. B.*...Mattoon, Ill.
Day. & Un. Rd.: J. H. Barrett, *Supt.* Cincinnati, O.
H. S. Gordon, *M. M.*...Dayton, O.
Cleveland, Delphos & St. Louis R. R.
3 g. 46 m. 2 lo. 44 cars.
I. H. Burgoon, *Gen. Man.*...Delphos, O.
B. F. Marshall, *M. M.*...Delphos, O.
Cleveland, Indiana & St. Louis R. R.
4-8½ g. 19 m. 2 lo. 20 cars.
J. A. Larned, *Rec. & Supt.*...Anderson, Ind.
Cleveland, Mt. Vernon & Delaware R. R.
4-9 g. 144 m. 22 lo. 751 c.
N. Monsarrat, *Gen. Supt.*...Akron, O.
G. M. Taylor, *M. M. & C. B.*...Mt. Vernon, O.
Cleve., Youngstown & Pitts. R. R. 3 g. 30 m. 3 lo. 138 c.
D. T. Lumley, *Gen. Supt.*...Alliance, O.
C. H. Dorman, *M. M. & M. C. B.*...Alliance, O.
Cleveland, Lorain & Wheeling Ry.
4-8½ g. 158 m. 31 lo. 1,878 cars.
Oscar Townsend, *Gen. Man.*...Cleveland, O.
Wm. Thornburg, *Supt.*...Lorain, O.
W. A. Stone, *M. M.*...Lorain, O.
Cleve. & Marietta R. R. (*See Wheel. & Lake Erie.*)
Cleveland & Pittsburg. (*See Penna. Co.; (4) Div.*)
Clifton & Lordsburg Ry. 20 m.
W. H. Jones, *Gen. Supt. & Pur. Agt.* Lordsb'g, N. M.
Clifton & Port Hudson R. R. 4-8½ g. 21 m. 3 lo. 12 c.
C. Corcoran, *Supt.*...Clinton, La.
Ried Blochman, *M. M.*...Clinton, La.
Clove Branch R. R. 4-8½ g. 4 m. 1 lo. 59 cars.
C. L. Kimball, *Supt.*...Mattewan, N. Y.
W. G. Vanbuskirk, *M. M.*...Dutchess Jc., N. Y.
Coburg, Peterborough & Marmora Ry.
5-6 g. 47 m. 5 lo. 255 cars.
Jas. R. Barber, *Gen. Supt.*...Cobourg, Ont.
Jas. Clark, *M. M.*...Cobourg, Ont.
John Tinney, *M. C. B.*...Cobourg, Ont.
Colorado Central R. R. (*See Un. Pac.; (4) Div.*)
Columbia & Greenville R. R. (*See Rich. & D.; (3) Div.*)
Columbia & Puget Sound R.R. 3 g. 21 m. 7 lo. 114 c.
J. M. Colman, *Gen. Supt.*...Seattle, Wash. Ter.
Columbus, Hocking Valley & Toledo Ry.
4-9 g. 324 m. 96 lo. 7,257 cars.
M. M. Greene, *Gen. Man.*...Columbus, O.
G. R. Carr, *Gen. Supt.*...Columbus, O.
W. M. Greene, *Pur. Agt.*...Columbus, O.
Ira G. Hutchins, *M. M.*...Columbus, O.
J. M. Rockafield, *M. C. B.*...Columbus, O.
Tol. Div.: M. T. Seymour, *Supt.*...Columbus, O.
Hock. V. Div.: M. P. L. Booth, *Supt.* Columbus, O.
Ohio Riv. Div.: C. D. Norris, *Supt.*...Logan, O.
Columbus & Eastern R. R. In progress.
J. E. Redfield, *Pres.*...Columbus, Ohio.
Columbus & Maysville Ry. (*See Cin. & East.*)
Columbus & Rome R. R. 3 g. 33 m. 2 lo. 30 cars.
M. E. Gray, *Supt.*...Columbus, Ga.
Columbus & Western Ry. 5 g. 89 m. 21 lo. 53 cars.
E. A. Flewellen, *Gen. Man.*...Columbus, Ga.
R. A. Bridges, *M. M.*...Opelika, Ala.
Concord R. R. 4-8½ g. 141 m. 38 lo. 1,235 cars.
H. E. Chamberlain, *Supt. & P. Agt.* Concord, N. H.
J. T. Gordon, *M. M. & C. B.*...Concord, N. H.
Concord & Claremont R. R. (*See Northern of N. H.*)
Conn. Riv. and Ver. Val. R. Rs. 4-8½ g. 130 m. 42 lo. 554 c.
J. Mulligan, *Supt. & Pur. Agt.* Springfield, Mass.
W. H. Stearns, *M. M.*...Springfield, Mass.
Robert Hitchcock, *M. C. B.*...Springfield, Mass.
Conn. & Passumpsic Rivers R. R. (*See Passumpsic.*)
Connotton Valley R. R. 3 g. 160 m. 26 lo. 997 cars.
Samuel Briggs, *Gen. Man.*...Canton, O.
B. C. Bosworth, *M. M.*...Canton, O.
Cooperstown & Susquehanna Valley R. R.
4-8½ g. 16 m. 2 lo. 14 cars.
Andrew Shaw, *Pres.*...Cooperstown, N. Y.
A. Mumford, *M. M.*...Cooperstown, N. Y.
Corning, Cowanesque & Antrim Ry. (*See Syr., G. & C.*)
Cornwall R. R. 4-8½ g. 12 m. 5 lo. 166 cars.
Frank Donahue, *G. Supt. & M. M.* Lebanon, Pa.
Levi Blonch, *M. C. B.*...Lebanon, Pa.
Coudersport & Port Allegheny R. R.
3 g. 17 m. 2 lo. 50 cars.
B. A. McClure, *Gen. Supt.*...Coudersport, Pa.
Credit Valley Ry. 4-8½ g. 184 m. 22 lo. 535 cars.
Wm. Whyte, *Gen. Supt.*...Toronto, Ont.
John Macnab, *Pur. Agt.*...Toronto, Can.
H. G. Taylor, *Mech. Supt.*...Toronto, Can.
Crooked Creek R. R. 3 g. 9 m. 1 lo. 37 cars.
Walter C. Willson, *Gen. Man.* Webster City, Ia.
Geo. W. Post, *Pur. Agt.*...Lehigh, Ia.
Crown Point Iron Co. R. R. 3 g. 13 m. 4 lo. 113 c.
A. L. Inman, *Gen. Man.*...Plattsburg, N. Y.
H. L. Reed, *Pur. Agt.*...Crown Point, N. Y.
J. M. Davies, *Supt. & M. M.*...Crown Point, N. Y.
J. C. Sherman, *M. C. B.*...Crown Point, N. Y.
Cumberland Ry. 4-8½ g. 32 m. 1 lo. 64 c.
J. A. Killam, *Gen. Man.*...Parsboro, N. S.
E. McKinnon, *M. M.*...Parsboro, N. S.
Cumberland Valley R. R. 4-9 g. 125 m. 21 lo. 451 cars.
J. F. Boyd, *Supt.*...Chambersburg, Pa.
A. S. Hull, *M. M.*...Chambersburg, Pa.
C. Wicke, *M. C. B.*...Chambersburg, Pa.
Cumberland & Maurice River R. R. 4-8½ g. 20 m.
L. H. Dowdney, *Supt.*...Port Morris, N. J.
Cumberland & Penn. R. R. 4-8½ g. 55 m. 28 lo. 625 c.
P. L. Burwell, *Gen. Supt. & P. A.* Cumberland, Md.
N. W. Howson, *Mast. of Mach.* Mt. Savage, Md.
Nathan Binix, *M. C. B.*...Mt. Savage, Md.

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Danville & New River R. R. 3 g. 43 m. 2 lo. 30 c.
W. T. Sutherlin, *Gen. Man.*...Danville, Va.
J. F. Morton, *M. M.*...Danville, Va.
Danbury & Norwalk R. R. 4-8½ g. 36 m. 7 lo. 112 c.
L. W. Sandiforth, *G. Supt. & P. A.* S. Norwalk, Ct.
N. M. George, *M. M. & C. B.*...Danbury, Conn.
Danville, Mocksville & So.-Wn. R. R. 3 g. 28 m.
H. M. Shivler, *Supt.*...Leaksville, N. C.
Danville, Olney & O. R. R. R. 4-8½ g. 110 m. 5 lo. 83 c.
Chas. Howard, *Rec. & Man.*...Olney, Ill.
J. M. Graham, *Supt.*...Kansas, Ill.
Louis Parisoe, *M. M. & C. B.*...Kansas, Ill.
Dayton & Union R. R. (*See Clev., Col., Cin. & Ind.*)
Dayton & Michigan R. R. (*See Cin., Ham. & Day.*)
Del., Lackawanna & W. and N. Y., Lack. & W. R. Rs.
4-8½ g. 930 m. 433 lo. 31,980 cars.
Wm. F. Halstead, *Gen. Supt.*...Scranton, Pa.
G. W. Cushing, *Pur. Agt.*...New York, N. Y.
Walter Dawson, *Mast. of Mach.*...Scranton, Pa.
Robt. McKenna, *M. C. B.*...Scranton, Pa.
Bloomsb'g Div.: C. Graham, *M. M.* Kingston, Pa.
Utica Div.: A. C. Salisbury, *Supt.*...Utica, N. Y.
Thos. Thatcher, *M. M.*...Utica, N. Y.
Morris & Essex Div.: Sussex; P. & D. and C. R. Rs.
A. Reasoner, *Supt.*...Hoboken, N. J.
W. H. Lewis, *M. M.*...Kingsland, N. J.
J. W. Baker, *Mast. Car Rep.*...Dover, N. J.
Oswego & Syracuse Div.:
W. B. Phelps, *Supt.*...Oswego, N. Y.
Jas. Buchanan, *M. M.*...Syracuse, N. Y.
Syracuse, Binghamton & New York R. R.
4-8½ g. 81 m. 20 lo. 598 cars.
W. K. Niver, *Gen. Supt.*...Syracuse, N. Y.
Jas. Buchanan, *M. M.*...Syracuse, N. Y.
Cayuga Div.: W. R. Humphrey, *Supt.* Ithaca, N. Y.
Delaware, Maryland & Virginia R. R.
4-8½ g. 101 m. 7 lo. 145 cars.
Tho. Groom, *Supt.*...Lewes, Del.
Geo. Messick, *M. M.*...Lewes, Del.
W. H. Virden, *M. C. B.*...Lewes, Del.
Delaware River R. R. 4-8½ g. 20 m. 3 lo. 4 cars.
E. H. Green, *Supt.*...Pedricktown, N. J.
Delaware Western R. R. (*See Balt. & Phil.*)
Delaware & Chesapeake R. R. (*See Penna.; (4) Div.*)
Delaware & Hudson Canal Co.
4-3 and 4-8½ g. 634 m. 180 lo. 10,799 cars.
C. F. Young, *Gen. Man.*...Honesdale, Pa.
C. F. Young, *Pur. Agt.*...Albany, N. Y.
R. C. Blackall, *Supt. of Mach.*...Albany, N. Y.
Susq. Div.: C. D. Hammond, *Supt.* Albany, N. Y.
C. A. Jones, *M. M.*...Oneonta, N. Y.
J. R. Skinner, *M. C. B.*...Oneonta, N. Y.
Sar. & Ch. Divs.: T. Voorhees, *Supt.*...Troy, N. Y.
J. L. Corey, *M. M.*...Green Island, N. Y.
Chr. Körner, *M. C. B.*...Green Island, N. Y.
Pa. Div.: R. Manville, *Supt. & Pur. Agt.* and
S. B. Dotterer, *M. M.*...Carbondale, Pa.
T. Orchard, *M. C. B.*...Carbondale, Pa.
Denver Circle R. R. 3 g. 6 m. 3 lo. 15 cars.
Theo. C. Henry, *Gen. Man.*...Denver, Col.
John H. Harris, *Gen. Supt.*...Denver, Col.
Denver, Utah & Pacific R. R. 3 g. 34 m. 2 lo. 58 c.
L. M. Fouts, *Gen. Supt.*...Denver, Col.
Denver & New Orleans. 4-8½ g. 140 m. 11 lo. 400 c.
C. W. Fisher, *Gen. Man.*...Denver, Col.
Chas. Wheeler, *Pur. Agt.*...Denver, Col.
S. P. Weller, *M. M. & M. C. B.*...Denver, Col.
Denver & Rio Grande Ry. 3 g. 1,665 m. 222 lo. 5,032 c.
D. C. Dodge, *Gen. Man.*...Denver, Col.
A. B. Garner, *Pur. Agt.*...Denver, Col.
N. W. Sample, *Supt. M. P. & M.*...Denver, Col.
(1) Col. & N. M. Div.: R. E. Cable, *Gen. Supt.* Denver, Col.
1st Div.: W. H. Bancroft, *Supt.*...S. Pueblo, Col.
2d Div.: Cole Lydon, *Supt.*...Alamosa, Col.
3d Div.: G. W. Cook, *Supt.*...Leadville, Col.
4th Div.: R. M. Ridgway, *Supt.*...Salida, Col.
(2) Utah Div.: *Gen. Supt.* Salt Lake City, Utah.
Des Moines, Osceola & Southern R. R.
3 g. 100 m. 7 lo. 253 cars.
Henry Stivers, *Gen. Supt.*...Osceola, Ia.
L. D. Berry, *M. M.*...Osceola, Ia.
Elias Tonet, *M. C. B.*...Osceola, Ia.
Des Moines & Ft. Dodge. 4-8½ g. 144 m. 13 lo. 350 c.
C. N. Gilmore, *Supt.*...Des Moines, Ia.
John McGrayel, *M. M.*...Grand Junction, Ia.
E. A. Avery, *M. C. B.*...Grand Junction, Ia.
Det., Gr. H. & Mil. Ry. 4-8½ g. 189 m. 39 lo. 696 c.
G. R. Nash, *Man.*...Detroit, Mich.
John S. Lorimer, *Storekeeper*...Detroit, Mich.
W. J. Morgan, *Supt.*...Detroit, Mich.
F. Parker, *Mech. Supt.*...Detroit, Mich.
Det., Lansing & No'n R. R. 4-8½ g. 222 m. 84 lo. 1027 c.
John B. Mulliken, *Gen. Man.*...Detroit, Mich.
Allan Bourn, *Pur. Agt.*...Detroit, Mich.
Thos. M. Fish, *Gen. Supt.*...Ionia, Mich.
G. C. Watrous, *M. M. & C. B.*...Ionia, Mich.
Det., Mack. & Marq. R.R. 4-8½ g. 152 m. 16 lo. 1,112 c.
D. McCool, *Gen. Supt.*...Marquette, Mich.
E. W. Allen, *Pur. Agt.*...Marquette, Mich.
John Wilson, *Mech. Supt.*...Marquette, Mich.
Dorchester & Delaware R. R. (*See Penna.(4) Del. Div.*)
Dubuque & Dakota R. R. 4-8½ g. 64 m. 2 lo. 54 cars.
C. J. Goodrich, *Supt.*...Waverly, Ia.
W. S. Couch, *Pur. Agt.*...Dubuque, Ia.
Duck River Valley R. R. (*See Nash., Chat. & St. L.*)
Dunkirk, Allegheny Valley & Pittsburgh R. R.
4-8½ g. 91 m. 14 lo. 102 cars.
D. Thayer, *Gen. Supt.*...Dunkirk, N. Y.
R. C. Moore, *Pur. Agt.*...New York, N. Y.
J. C. Haggett, *M. M. & C. B.*...Dunkirk, N. Y.

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East Alabama Ry. 5 g. 22 m. 3 lo. 19 cars.
W. W. Barnes, *Supt.*...Opelika, Ala.
East Broad Top R. R. 3 g. 30 m. 7 lo. 260 cars.
A. W. Sims, *Supt.*...Orbisonia, Pa.
A. B. Greenwood, *M. M.*...Orbisonia, Pa.
East St. Louis & Carondelet Ry. 4-9 g. 4 lo. 27 c.
Joseph Hill, *Gen. Supt.*...East St. Louis, Ill.
East Tenn. & Western North Car. R. R.
3 g. 34 m. 2 lo. 70 cars.
Thomas E. Matson, *Supt.*...Elizabethton, Tenn.
East Tennessee, Virginia & Georgia R. R.
5 g. 1,453 m. 175 lo. 3,670 cars.
Henry Fink, *V. P. & Gen. Man.*...Knoxville, Tenn.
J. F. O'Brien, *Gen. Supt.*...Knoxville, Tenn.
W. A. Harrison, *Pur. Agt.*...Knoxville, Tenn.
East Tenn. Div. and No. Car. and Ohio Branches:
F. K. Huger, *Supt.*...Knoxville, Tenn.
B. J. Sitton, *M. M.*...Knoxville, Tenn.
Jos. Armbruster, *M. C. B.*...Knoxville, Tenn.
Alabama Div.: J. M. Bridges, *Supt.*...Selma, Ala.
Simon Gay, *M. M.*...Selma, Ala.
W. W. Pierce, *M. C. B.*...Selma, Ala.
Memphis & Charleston R. R. (Div.):
H. B. Pegram, Jr., *Supt.*...Memphis, Tenn.
H. N. Burford, *M. M.*...Memphis, Tenn.
Atlanta & Georgia Divs.:
Atl. Div.: J. W. Fry, *Supt.*...Atlanta, Ga.
Ga. Div.: J. E. Mallory, *Supt.*...Macon, Ga.
M. J. Rogers, *M. M. & M. C. B.*...Atlanta, Ga.
East & West R. R. of Ala. 3 g. 100 m. 6 lo. 75 c.
W. H. Dunn, *Supt.*...Cartersville, Ga.
John Postell, *Manager*...Cross Plain, Ala.
C. E. Scruton, *M. M. & C. B.*...Cedartown, Ga.
Eastern R. R. 4-8½ g. 283 m. 99 lo. 2,268 cars.
Payson Tucker, *Gen. Man.*...Boston, Mass.
D. W. Sanborn, *Mast. of Trans.*...Boston, Mass.
G. F. Hurd, *Pur. Agt.*...Boston, Mass.
Amos Pillsbury, *S. M. P. & M.*...E. Boston, Mass.
J. D. Billings, *G. For. Car Dept.*...Salem, Mass.
Conc'y Div.: J. W. Sanborn, *Supt.* Wolfboro', N. H.
Eastern Kentucky R. R. 4-8½ g. 34 m. 5 lo. 160 c.
H. W. Bates, *Man. & Pur. Agt.*...Riverton, Ky.
D. S. Weaver, *M. M.*...Riverton, Ky.
Eastern (Maine) R. R. (*See Maine Central.*)
Eastern Shore R. R. 4-8½ g. 38 m. 3 lo. 9 c.
W. Thompson, *Supt.*...Princess Anne, Md.
F. Strattner, *M. M.*...Princess Anne, Md.
Elberton Air-Line R.R. (*See Rich. & Dan.; N. G. Brs.*)
Elizabeth City & Norfolk R. R. (*See Norfolk So.*)
Elizabethtown, Lex. & Big Sandy R.R. (*See Ches. & O.*)
Emmitsburg R. R. (*See Western Md.*)
Erie & Pittsburg R. R. (*See Penna. Co.; (3) Div.*)
Eureka Springs Ry. 4-8½ g. 19 m. 1 lo. 9 cars.
Powell Clayton, *Gen. Man.* Eureka Springs, Ark.
Eureka & Palisade R. R. 3 g. 97 m. 7 lo. 125 cars.
B. Gilman, *Gen. Supt. & Pur. Agt.* Eureka, Nev.
E. C. Mills, *M. M.*...Palisade, Nev.
A. S. Longley, *M. C. B.*...Palisade, Nev.
European & North American R. R. (*See Maine Cen.*)
Evansville, Rockport & E'n Ry. 4-9 g. 71 m. 5 lo. 98 c.
H. L. Shepard, *Supt.*...Evansville, Ind.
Evansv. & Terre Haute. 4-8½ g. 169 m. 26 lo. 973 c.
D. J. Mackey, *Gen. Supt.*...Evansville, Ind.
John Torrance, *Gen. For.*...Evansville, Ind.

F

Fernandina & Jacksonville R.R. (*See Fla., Tr. & P.*)
Fitchburg R. R. 4-8½ g. 152 m. 100 lo. 3,430 cars.
John Adams, *Gen. Supt.*...Boston, Mass.
E. K. Turner, *Asst. Supt.*...Fitchburg, Mass.
F. S. Pratt, *Pur. Agt.*...Boston, Mass.
G. A. Coolidge, *Supt. M. P.*...Boston, Mass.
W. A. Foster, *Asst. Supt. M. P.*...Fitchburg, Mass.
J. W. Marden, *M. C. B.*...Charlestown, Mass.
Flint & Pere Marq. 4-8½ g. 346 m. 72 lo. 1,854 cars.
H. C. Potter, *Gen. Man.*...E. Saginaw, Mich.
D. Edwards, *Asst. Gen. Man.*...E. Saginaw, Mich.
W. F. Potter, *Supt.* (E. Div.)...E. Saginaw, Mich.
G. G. Cook, *Pur. Agt.*...E. Saginaw, Mich.
Sanford Keeler, *Gen. Supt.*...E. Saginaw, Mich.
M. Y. Meredith, *Supt.* (W. Div.)...E. Saginaw, Mich.
T. J. Hatswell, *M. M.*...E. Saginaw, Mich.
R. McPherson, *M. C. B.*...E. Saginaw, Mich.
Florida Central & Western R. R.
5 g. 234 m. 16 lo. 193 cars.
Wm. M. Davidson, *Gen. Man.* Jacksonville, Fla.
J. S. McElroy, *Mast. Tr. & Mach.* Tallahassee, Fla.
Florida Southern Ry. 3 g. 91 m. 6 lo. 96 cars.
Sherman Conant, *Gen. Man.*...Palatka, Fla.
Jas. D. Hollister, *Supt.*...Palatka, Fla.
M. R. Miller, *M. M. & C. B.*...Palatka, Fla.
Florida Transit R. R. 5 g. 254 m. 15 lo. 204 c.
D. E. Maxwell, *Gen. Supt.*...Fernandina, Fla.
John Hedges, *Pur. Agt.*...Fernandina, Fla.
R. V. Dahoney, *M. M.*...Fernandina, Fla.
G. Hernandez, *M. C. B.*...Fernandina, Fla.
Fonda, Johnst'n & Gloversv. 4-8½ g. 26 m. 5 lo. 25 c.
Lawton Caten, *Supt.*...Gloversville, N. Y.
G. V. Putman, *M. M.*...Gloversville, N. Y.
Fond du Lac, Amboy & Peoria. 3 g. 30 m. 2 lo. 35 c.
Alonzo Kinyon, *Supt. & P. A.* Fond du Lac, Wis.
Fort Dodge & Fort Ridley R. R. (*See Minn. & St. L.*)
Ft. Madison & No.-West'n Ry. 3 g. 45 m. 5 lo. 127 c.
S. B. Kenrick, *Supt. & Pur. Agt.* Ft. Madison, Ia.
I. L. Lamb, *M. M. & C. B.*...Ft. Madison, Ia.
Ft. Wayne, Cin. & Louisv. 4-8½ g. 128 m. 10 lo. 250 c.
White Water R. R. 4-8½ g. 65 m. 5 lo. 170 cars.
W. W. Worthington, *Gen. Supt.*...Ft. Wayne, Ind.
T. H. Haberkorn, *M. M.*...Ft. Wayne, Ind.
Wm. Knight, *M. C. B.*...Ft. Wayne, Ind.
Fort Worth & Denver City Ry.
4-8½ g. 114 m. 8 lo. 443 cars.
C. L. Frost, *Gen. Supt.*...Fort Worth, Tex.
Fredericton Ry. 4-8½ g. 22 m. 2 lo. 21 cars.
F. B. Edgecomb, *Supt.*...Fredericton, N. B.
Freehold & New York Ry. 4-8½ g. 15 m. 4 lo. 40 c.
J. E. Ralph, *Supt. & Pur. Agt.* Keyport, N. J.
C. H. Snedeker, *M. M.*...Freehold, N. J.
Fulton County N. G. Ry. 3 g. 61 m. 3 lo. 106 cars.
A. C. Atherton, *Gen. Supt. & P. Agt.* Lewiston, Ill.

G

Gainesville & Dahlonega R. R. 3 g. 15 m.
W. P. Price, *Pres.*...Dahlonega, Ga.
Gainesville, Jefferson & Southern R.R. (*See Cen. of Ga.*)
Gal., Harrisburg & San Antonio Ry. (*See Cen. Pac.*)
Galveston, Houston & Hend. R.R. (*See Mo. Pac.(5) Div.*)
Galveston, Sabine & St. Louis Ry.
4-8½ g. 12 m. 2 lo. 19 cars.
Brad. Barner, *Gen. Man.*...Longview, Tex.
Chas. H. Jewell, *Gen. Supt.*...Longview, Tex.
Geneva, Ithaca & Sayre R. R. (*See Lehigh Val.*)
George's Creek & Cumberland R. R.
4-9 g. 25 m. 6 lo. 212 cars.
J. A. Millholland, *Gen. Man.*...Cumberland, Md.
Georgetown & Lane's R. R. 5 g. 36 m. 2 lo. 52 c.
G. W. Earle, *Gen. Supt.*...Georgetown, S. C.
Georgia R. R. 5 g. 307 m. 42 lo. 1,017 cars.
John W. Green, *Gen. Man.*...Augusta, Ga.
John S. Cook, *M. M.*...Augusta, Ga.
T. M. Preval, *M. C. B.*...Augusta, Ga.
Georgia Pacific Ry. 5 g. 218 m.
G. J. Foreacre, *Supt.*...Atlanta, Ga.
W. M. Sutton, *Pur. Agt.*...Greenville, Miss.
Benj. Davis, *M. M.*...Greenville, Miss.
J. B. Shelton, *M. C. B.*...Greenville, Miss.
Grand Haven R. R. (*See Chic. & W. Mich.*)
Grand Junction Ry. (*See Midland of Can.*)
Grand Rapids, Indiana & Mackinaw. (*See Gr. R. & I.*)
G'd Rap., Newaygo & L. S. R. R. (*See Chic. & W. M.*)
Grand Rapids & Indiana. 4-8½ g. 528 m. 52 lo. 1,724 c.
W. O. Hughart, *Gen. Man.* Grand Rapids, Mich.
W. R. Shelby, *Pur. Agt.*...Grand Rapids, Mich.
S. D. Bradley, *M. M.*...Grand Rapids, Mich.
No'n Div.: J. M. Metheany, *Supt.* G'nd Rap., Mich.
So'n Div.: P. S. O'Rourke, *Supt.* Fort Wayne, Ind.
Grand Southern Ry. of New Brunswick.
4-8½ g. 82 m. 5 lo. 54 cars.
J. N. Greene, *Gen. Man.*...St. George, N. B.
F. W. Holt, *Supt.*...St. George, N. B.
Thomas Logan, *M. M.*...St. George, N. B.
Grand Tower & Carbondale. 4-8½ g. 25 m. 6 lo. 357 c.
T. M. Williamson, *Supt. & P. A.* Gr. Tower, Ill.
Hugh Smith, *M. M. & C. B.*...Grand Tower, Ill.
Grand Trunk Ry. 4-8½ g. 2,332 m. 660 lo. 16,330 c.
Joseph Hickson, *Gen. Man.*...Montreal, Can.
Wm. Wainright, *Asst. Man.*...Montreal, Can.
Mont. Divs.: W. J. Spicer, *Supt.* Montreal, Can.
Jno. Taylor, *Gen. Storekeeper* Montreal, Can.
Herbert Wallis, *Mech. Supt.*...Montreal, Can.
Wm. McWood, *Supt. Car Dept.* Montreal, Can.
F. R. F. Brown, *Man. Lo. Wks.* Montreal, Can.
J. Haskoni, *Div. M. S.*...Richmond, P. Q.
Tor. Div.: E. Wragge, *Asst. Gen. Man.* Toronto, Can.
F. L. Wanklyn, *Div. M. S.*...Brockville, Ont.
J. Davis Barnett, *Div. M. S.*...Stratford, Ont.
Gt. West'n Div.: Chas. Stiff, *Supt.* Hamilton, Ont.
E. Baines, *Store Kpr.*...London, Ont.
C. K. Domville, *Mech. Supt.*...Hamilton, Ont.
C. F. Hanson, *Lo. For.*...London, Ont.
J. D. McIlwain, *Supt. Car Dept.*...London, Ont.
Chi. & Gr. Trunk Ry. 4-8½ g. 339 m. 103 lo. 1,191 c.
S. R. Callaway, *Gen. Man.*...Chicago, Ill.
W. H. Pettibone, *Supt.*...Battle Creek, Mich.
A. Judd, *Pur. Agt.*...Fort Gratiot, Mich.
H. Roberts, *Mech. Supt.*...Port Huron, Mich.
Grand Trunk, Georgian Bay & Lake Erie Ry. (*See G. T.*)
Great Western Ry. (*See Grand Trunk; G. W. Div.*)
Green Bay, Winona & St. Paul R. R.
4-8½ g. 250 m. 19 lo. 623 cars.
Timothy Case, *Gen. Man. & P. A.* Green Bay, Wis.
A. Fenwick, *M. M.*...Ft. Howard, Wis.
Green Cove Spring & Melrose R.R. 3 g. 32 m. 1 lo. 11 c.
S. Ackley, *Pres.*...Philadelphia, Pa.
Greenwich & Johnsonville Ry. 4-8½ g. 15 m. 1 lo. 7 c.
J. H. Thompson, *Supt.*...Greenwich, N. Y.
Gulf, Col. & Santa Fé Ry. 4-8½ g. 536 m. 43 lo. 1,400 c.
John Sealy, *Gen. Man.*...Galveston, Texas.
F. P. Killeen, *Asst. Gen. Man.* Galveston, Texas.
Jno. W. Thorne, *Pur. Agt.*...Galveston, Texas.
G. B. Nichols, *M. M.*...Galveston, Texas.
W. H. Martin, *M. C. B.*...Galveston, Texas.
Gulf, W'n Texas & Pac. Ry. 4-8½ g. 68 m. 6 lo. 74 c.
M. D. Monserrate, *Supt. & Pur. Agt.* Cuero, Tex.
James Mooney, *M. M.*...Cuero, Texas.

H

Halifax & Cape Breton Ry. 4-8½ g. 79 m. 9 lo. 268 c.
H. Abbott, *Manager*...New Glasgow, N. S.
J. B. Jones, *M. M.*...New Glasgow, N. S.
Hannibal & St. Jo. R. R. 4-8½ g. 292 m. 76 lo. 1,906 c.
John B. Carson, *Gen. Man.*...Hannibal, Mo.
W. R. Woodard, *Supt.*...Hannibal, Mo.
T. L. Dunn, *Ch. Eng. & Pur. Agt.*...Hannibal, Mo.
Jas. Long, *Supt. M. P. & Car Dep.* Hannibal, Mo.
Hanover Branch R. R. 4-8½ g. 8 m. 2 lo. 18 cars.
E. Y. Perry, *Supt.*...South Hanover, Mass.
Hanover Junction, Hanover & Gettysburg R. R.
4-8½ g. 74 m. 10 lo. 140 cars.
H. D. Scott, *Gen. Supt.*...Gettysburg, Pa.
John J. Bingley, *M. M.*...Hanover, Pa.
Jas. Harthorn, *M. C. B.*...Hanover, Pa.
Harrisburg & Potomac R. R. 4-8½ g. 35 m. 3 lo. 35 c.
R. H. Middleton, *Supt.*...Boiling Springs, Pa.
Hartford & Conn. Val. R. R. 4-8½ g. 47 m. 9 lo. 196 c.
Samuel Babcock, *Gen. Supt.*...Hartford, Ct.
Levi Woodhouse, *Asst. Supt.*...Hartford, Ct.
S. E. Brewer, *M. M. & C. B.*...Hartford, Conn.
Hartford & Conn. W'n R.R. 4-8½ g. 110 m. 16 lo. 495 c.
John F. Jones, *Supt.*...Hartford, Ct.
J. C. Barton, *M. M.*...Hartford, Ct.
Hartwell R. R. (*See Rich. & Dan.; N. G. Brs.*)
Hecla & Torch Lake R. R. 4-1 g. 5 m. 5 lo. 165 cars.
W. A. Childs, *Gen. Man.*...Calumet, Mich.
Herkimer, Newport & Poland Ry.
3-6 g. 17 m. 2 lo. 24 cars.
Albert Wilber, *Supt.*...Herkimer, N. Y.
Hobart & Manistee River R. R. 3 g. 9 m. 2 lo. 42 c.
H. W. Marsh, *Supt.*...Hobart, Mich.
Hopkinton, Milford & Woonsocket R. R. 22 m.
E. T. Logee, *Supt.*...Milford, Mass.
Hot Springs Branch R.R. (*See Mo. Pac.; (4) Div.*)
Housatonic R. R. 4-8½ g. 126 m. 25 lo. 571 cars.
W. H. Yeomans, *Supt.*...Bridgeport, Ct.
D. S. Draper, *Pur. Agt.*...Bridgeport, Ct.
N. Slingland, *M. M.*...Falls Village, Ct.
J. J. Ferris, *M. C. B.*...Falls Village, Ct.
Houston Belt Ry. 4-8½ and 3 gauge 10 miles.
S. L. Werden, *V. P. & Gen. Man.* Houston, Tex.
Houston, East & West Tex. Ry. 3 g. 150 m. 10 lo. 570 c.
Paul Bremond, *Pr. & Pur. Agt.*...Houston, Tex.
E. L. Bremond, *Gen. Man.*...Houston, Tex.
B. O. Diffey, *M. M.*...Houston, Tex.
C. F. Schelewa, *M. C. B.*...Houston, Texas.
Houston & Tex. Cen. Ry. 4-8½ g. 750 m. 78 lo. 2,526 c.
J. Waldo, *V. Pr. & Gen. Man.*...Houston, Tex.
A. H. Swanson, *Gen. Tr. Man.*...Houston, Tex.
E. S. Larchar, *Pur. Agt.*...New York, N. Y.
L. C. Noble, *Gen. M. M.*...Houston, Tex.
James McGee, *M. C. B.*...Houston, Tex.
So. & Wn. Divs.: M. G. Howe, *Supt.* Houston, Tex.
No. & Mi. Divs.: G. A. Quinlan, *Supt.*, and
C. H. Burns, *Asst. M. M.*...Corsicana, Tex.
No.-Wn. Div.: Donald Allen, *Supt.*...Waco, Tex.
Humeston & Shenandoah R. R.
4-8½ g. 113 m. 18 lo. 80 cars.
F. O. Wyatt, *Gen. Man.*...Clarinda, Ia.
M. B. Snyder, *M. M.*...Clarinda, Ia.
Huntingdon & Br. Top Mt. 4-8½ g. 62 m. 18 lo. 69 c.
Geo. F. Gage, *Gen. Supt.*...Huntingdon, Pa.
Samuel B. Knight, *Pur. Agt.*...Philadelphia, Pa.
William Barkla, *M. M.*...Saxton, Pa.

I

Illinois Central R. R. 4-8½ g. 1,909 m. 327 lo. 8,511 c.
Jas. C. Clark, *Gen. Man.*...Chicago, Ill.
E. T. Jeffery, *Gen. Supt.*...Chicago, Ill.
O. Ott, *Pur. Agt.*...Chicago, Ill.
Henry Schlacks, *Supt. of Mach.*...Chicago, Ill.
W. B. Snow, *M. M. Car Works*...Chicago, Ill.
(1) Ill. & Ia. Divs.: C. A. Beck, *Supt.*...Chicago, Ill.
Chic. Div.: T. J. Hudson, *Supt.*...Cairo, Ill.
Wm. Renshaw, *Act. M. M.*...Chicago, Ill.
Mid. Div.: H. L. Frisbie, *Supt.*...Pontiac, Ill.
Spring Div.: W. Wilkinson, *Supt.* Springfield, Ill.
W. B. McKenna, *M. M.*...Clinton, Ill.
No'n Div.: J. C. Jacobs, *Supt.*...Amboy, Ill.
J. B. Edams, *M. M.*...Amboy, Ill.
So. Div.: David Oxley, *M. M.*...Centralia, Ill.
Ia. Div.: M. Gilleas, *Supt.*...Dubuque, Ia.
Thos. W. Place, *M. M.*...Waterloo, Ia.
(2) N. O. Divs.: C. M. Sheafe, *Supt.* New Orleans, La.
W. H. Purdy, *Supt. Mach.*...McComb City, Miss.
Geo. W. Baxter, *M. C. B.*...McComb City, Miss.
So. Div.: H. W. Clarke, *Acting Supt.* do.
W. P. McKinley, *M. M.*...McComb City, Miss.
No. Div.: J. G. Mann, *Supt.*...Jackson, Tenn.
J. M. Keith, *M. M.*...Jackson, Tenn.
J. F. White, *M. M.*...Water Valley, Miss.
Illinois Midland Ry. 4-8½ g. 176 m. 12 lo. 611 cars.
D. H. Conklin, *Rec. & Gen. Man.*...Decatur, Ill.
O. E. Grady, *Train Mast.*...Decatur, Ill.
Frank Young, *For. Shops*...Paris, Ill.
Illinois & St. Louis R. R. 4-8½ g. 19 m. 8 lo. 402 c.
C. H. Sharman, *Gen. Supt. & P. A.* St. Louis, Mo.
D. J. Timlin, *M. M.*...Belleville, Ill.
Charles Rothe, *M. C. B.*...E. St. Louis, Ill.
Indiana, Bloomington & Western Ry.
4-8¾ g. 826 m. 112 lo. 4,067 cars.
C. E. Henderson, *Gen. Man.* Indianapolis, Ind.
I. H. Wilson, *Gen. Supt.*...Indianapolis, Ind.
H. C. Norton, *Pur. Agt.*...Indianapolis, Ind.
B. Warren, *Gen. M. M.*...Indianapolis, Ind.
Peoria Div.: E. Hiserodt, *M. M.*...Urbana, Ill.
St. Louis Div.: John King, *M. M.* Indianapolis, Ind.
Ohio So. Rd.: D. R. Ennis, *Supt.*...Springfield, O.
Jos. S. Porter, *M. M.*...Sandusky, O.
Indiana, Illinois & Iowa R.R. 4-8½ g. 104 m. 5 lo. 83 c.
F. M. Drake, *Gen. Man.*...Kankakee, Ill.
T. P. Shonts, *Gen. Supt.*...Kankakee, Ill.
H. V. Vedder, *M. M.*...Streator, Ill.
Indiana & Illinois Southern Ry. 3 g. 91 m. 3 lo. 69 c.
W. C. Lyon, *Gen. Man. & P. Agt.* Robinson, Ill.
J. S. Pickering, *M. M. & C. B.*...Effingham, Ill.
Indianapolis, Decatur & Springfield Ry.
(*See Ind., Bloom. & West'n.*)
Indianapolis & St. Louis R. R. (*See C., C., C. & I.*)
Indianapo. & Vincennes R. R. (*See Penna. Co.(8) Div.*)
Intercolonial Ry. 4-8¾ g. 846 m. 135 lo. 4,500 cars.
David Pottinger, *Chief Supt.*...Moncton, N. B.
T. V. Cook, *Gen. Storekeeper*...Moncton, N. B.
H. A. Whitney, *Mech. Supt.*...Moncton, N. B.
Ewd. D. Shaffer, *M. C. B.*...Moncton, N. B.
Monc. Div.: J. E. Price, *Supt.*...Cambellton, N. B.
Hal. & St. J. Div.: J. J. Wallace, *Supt.*...Truro, N. B.
Levis Div.: A. McDonald, *Supt.* Rivière du Loup, Q.
International Ry. 4-8½ g. 69 m. 7 lo. 12 cars.
D. E. McFee, *Supt.*...Sherbrooke, Que.
J. Ruelle, *M. M.*...Sherbrooke, Que.
W. Charest, *M. C. B.*...Sherbrooke, Que.
International & Gt. N'n R. R. (*See Mo. Pac.;(5) Div.*)
Iowa Falls & Sioux City R. R. (*See Ill. Cen.*)
Iron Ry. (*See Tol., Cin. & St. L.*)
Iron Mountain & Helena R. R. (*See Mo. Pac.;(4) Div.*)
Ithaca, Auburn & Western Ry. (*See Southern Cen.*)

J

Jacksonville So.-E'n R. R. 4-8½ g. 54 m. 5 lo. 69 c.
E. S. Greenleaf, *Supt.*...Jacksonville, Ill.
Ira F. Petrie, *M. M.*...Jacksonville, Ill.
Jacksonville, St. Augustine & Halifax River Ry.
3 g. 76 m. 2 lo. 27 cars.
A. M. Lyon, *Pres.*...St. Augustine, Fla.
Jacksonv., Pensacola & Mob. (*See Fla. Cent. & W.*)
Jamesville & Washington R. R. (*See Norfolk So'n.*)
Jeffersonv'l, Madison & Indpls. R. R. (*See (9) Pa. Co.*)
Jersey City & Albany R. R. 4-8½ g. 38 m.
J. W. McCulloh, *Manager*...Jersey City, N. J.
Jersey City & Bergen R. R. 4-8½ g. 6 m. 2 lo. 13 c.
T. M. Sayre, *Gen. Supt.*...Jersey City, N. J.
Jersey Shore, Pine Creek & Buff. Ry. (*See Phil. & R.*)
Junction & Breakwater R.R. (*See Del., Md. & Va.*)

K

Kaaterskill R. R. 3 g. 8 m.
J. H. Jones, *Supt.*...Rondout, N. Y.
Kankakee & Seneca R.R. (*See Cin., Ind., St. L. & Chi.*)
Kansas Central R. R. (*See Union Pacific.*)
Kansas City, Fort Scott & Gulf R. R.
4-8½ g. 389 m. 34 l. 1,377 c.
Geo. H. Nettleton, *Gen. Man.* Kansas City, Mo.
L. W. Towne, *Gen. Supt.*...Kansas City, Mo.
H. P. Jacques, *Pur. Agt.*...Kansas City, Mo.
J. S. McCrum, *M. M.*...Kansas City, Mo.
A. N. Montier, *M. C. B.*...Kansas City, Mo.
Kansas Cy, Lawrence & So. Kan. (*See At., Top. & S. F.*)
Kansas City, Springfield & Memphis R. R.
4-8½ g. 275 m. 10 lo. 125 cars.
George H. Nettleton, *Pres.*...Kansas City, Mo.
Kansas City, St. Joseph & Council Bluffs; and St. Jo. & Des Moines R. Rs. 4-8½ & 3 g. 368 m. 41 lo. 1,148 c.
J. F. Barnard, *Gen. Supt. & P. A.* St. Joseph, Mo.
Wm. Irving, *Pur. Agt.*...Chicago, Ill.
F. A. Chase, *M. M.*...St. Joseph, Mo.
Thos. Aylesbury, *G. For. Car. Dep.* St. Joseph, Mo.
Kansas City & Southern Ry. 4-8½ g. In progress.
Wm. Bailey, *Pres.*...Kansas City, Mo.
Kansas Coal Belt R. R. 4-8½ g. In progress.
C. H. Malin, *Gen. Man.*...Girard, Kan.
F. A. Hill, *Supt.*...Girard, Kan.
Kansas & Gulf Short Line R. R. 33 m. 2 lo. 32 cars.
Eli Culverhouse, *Gen. Man.*...Tyler, Tex.
V. K. Stevenson, *Pur. Agt.*...New York, N. Y.
Kendall & Eldred R. R. (*See Buf., N. Y. & Phil.*)
Kent Co.; Sm. & Del. Bay Rds. 4-8½ g. 50 m. 2 lo. 13 c.
Fred Gerker, *G. Man. & P. A.* Chestertown, Md.
Kent Northern Ry. 4-8½ g. 20 m. 1 lo. 8 cars.
J. C. Brown, *Gen. Man.*...Richibucto, N. B.
Kentucky Central R. R. 4-9 g. 184 m. 22 lo. 640 cars.
G. W. Bender, *Supt.*...Covington, Ky.
A. H. Watts, *M. of Mach.*...Covington, Ky.
J. L. Hackathorn, *M. C. B.*...Covington, Ky.
Kentucky & South Atlantic Ry. 3 g. 23 m. 3 lo. 52 c.
Geo. B. Harper, *Supt. & P. A.*...Mt. Sterling, Ky.
S. P. Hatfield, *M. M.*...Mt. Sterling, Ky.
Keokuk & Des Moines R.R. (*See Chi., R. I. & Pac.*)
Kinzua R. R. (*See Buf., N. Y. & Phil.*)
Kingston & Pembroke Ry. 4-8½ g. 73 m. 7 lo. 124 c.
B. W. Folger, *Supt.*...Kingston, Ont.
C. F. Gildersleeve, *Pur. Agt.*...Kingston, Ont.
Geo. Becker, *M. M.*...Kingston, Ont.
Knox & Lincoln R. R. 4-8½ g. 49 m. 5 lo. 103 cars.
C. A. Coombs, *Supt.*...Bath, Me.
Wm. A. Field, *M. M.*...Bath, Me.
C. L. Turner, *M. C. B.*...Bath, Me.
Knoxville & Augusta R. R. 5 g. 16 m. 2 lo. 34 cars.
J. M. Hood, *Supt.*...Knoxville, Tenn.
M. R. Hood, *Pur. Agt.*...Knoxville, Tenn.

L

Lackawanna & Pittsburg R. R. 3 g. 101 m.
R. M. Patterson, *Gen. Supt.*...Friendship, N. Y.
Lake Champlain & Moriah R.R. 4-8½ g. 8 m. 8 lo. 222c.
E. B. Hedding, *Supt.*...Port Henry, N. Y.
Lake Erie & Western Ry. 4-8½ g. 388 m. 43 lo. 1,623 c.
D. S. Hill, *Gen. Supt.*...La Fayette, Ind.
T. H. Perry, *Pur. Agt.*...La Fayette, Ind.
H. L. Cooper, *Supt. of Equipment*...Lima, O.
Lake George & Muskegon River R. R.
4-8½ g. 20 m. 4 lo. 79 cars.
W. S. Gerrish, *Gen. Man.*...Muskegon, Mich.

Lake Shore & Michigan So'n Ry.
4-8½ g. 1,340 m. 547 lo. 17,115 cars.
John Newell, *Gen. Man.* ... Cleveland, O.
P. P. Wright, *Gen. Supt.* ... Cleveland, O.
A. C. Armstrong, *Pur. Agt.* ... Cleveland, O.
James Sedgley, *Gen. M. M.* ... Cleveland, O.
John Kirby, *Gen. M. C. B.* ... Cleveland, O.
East'n Div.: C. B. Couch, *Supt.* ... Cleveland, O.
J. S. Graham, *M. M.* ... Buffalo, N. Y.
A. C. Robson, *M. C. B.* ... Buffalo, N. Y.
L. O. Gassett, *M. M.* ... Cleveland, O.
J. Withycombe, *M. C. B.* ... Cleveland, O.
Frank. Div.: G. H. McIntire, *Supt.* Youngstown, O.
Toledo Div.: Thos. Flesher, Jr., *Supt.* Cleveland, O.
J. M. Sanborn, *M. M.* ... Norwalk, O.
W. O. Smyth, *M. C. B.* ... Norwalk, O.
Mich. Divs.: J. E. Curtis, *Supt.* ... Toledo, O.
Det. Brs.: T. J. Charlesworth, *Supt.* Detroit, Mich.
Lansing, Ypsilanti & Ft. Wayne Branches.
W. H. Caniff, *Supt.* ... Hillsdale, Mich.
Western Div.: A. G. Amsden, *Supt.* ... Chicago, Ill.
G. W. Stevens, *M. M.* ... Elkhart, Ind.
Frank O. Bray, *M. C. B.* ... Adrian, Mich.
Gr. Rap. Br.: M. E. Wattles, *Supt.* Kalamazoo, Mich.
Lake Tahoe R. R. 3 g. 10 m. 3 lo. 49 cars.
D. L. Bliss, *Gen. Man.* ... Carson, Nev.
John T. Rogers, *Gen. Supt.* ... Carson, Nev.
Geo. R. Lindsay, *M. M.* ... Carson, Nev.
Leavenworth, Topeka & So. W'n Ry. (*See A. T. & S. F.*)
Lebanon Springs R. R. 4-8½ g. 58 m. 5 lo. 44 c.
W. C. Alstyne, *Manager* ... Albany, N. Y.
J. K. Hotaling, *Pur. Agt.* ... Albany, N. Y.
Geo. Tefft, *M. M.* ... Chatham, N. Y.
Lehigh Valley R. R. 4-8½ g. 559 m. 309 lo. 36,125 c.
H. S. Goodwin, *Gen. Supt.* ... Bethlehem, Pa.
W. C. Alderson, *Pur. Agt.* ... Philadelphia, Pa.
John S. Lentz, *M. C. B.* ... Packerton, Pa.
N. J. Div.: Jas. Donnelly, *Supt.* Perth Amboy, N. J.
John I. Kinsey, *M. M.* ... So. Easton, Pa.
Coal Rds.: J. I. Blakeslee, *Supt.* Mauch Chunk, Pa.
P. Hofecker, *M. M.* ... Weatherly, Pa.
John Campbell, *M. M.* ... Delano, Pa.
B. M. Div.: A. G. Brodhead, *S.* Mauch Chunk, Pa.
D. Clark, *M. M.* ... Hazleton, Pa.
Wy. Div.: A. Mitchell, *S. & M. M.* Wilkesbarre, Pa.
Pa. & N. Y.; and Geneva, Ithaca & Sayre R. Rs.
Wm. Stevenson, *Supt.* ... Sayre, Pa.
J. N. Weaver, *M. M.* ... Sayre, Pa.
Lehigh & Hudson River Ry. 4-8½ g. 63 m. 8 lo. 350 c.
Grinnel Burt, *Gen. Man.* ... Warwick, N. Y.
John Sayre, *Pur. Agt.* ... Warwick, N. Y.
W. L. Anderson, *Supt.* ... Warwick, N. Y.
S. Mills, *M. M.* ... Warwick, N. Y.
Lehigh & Lackawanna and Lehigh & Susquehanna R. Rs. (*See Phil. & Read.; N. J. Cen. Div.*)
Levis & Kennebec R. R. ... (*See Quebec Cen.*)
Ligonier Valley R. R. 4-9 g. 11 m. 2 lo. 22 cars.
Thos. A. Mellon, *Gen. Manager* ... Pittsburg, Pa.
Geo. Senft, *Supt. & P. Agt.* ... Latrobe, Pa.
Little Miami R. R. (*See Penna. Co.'s Rds.*; (8) *Div.*)
Little Rock, Miss. River & Texas Ry.
4-8½ g. 170 m. 12 lo. 299 cars.
Hy. Wood, *Gen. Man.* ... Little Rock, Ark.
J. A. Woodson, *G. S. & P. A.* Little Rock, Ark.
F. Hufsmith, *M. M. & C. B.* ... Arkansas City, Ark.
Little Rock & Fort Smith. 4-8½ g. 168 m. 12 lo. 353 c.
Hy. Wood, *Gen. Man.* ... Little Rock, Ark.
T. Hartman, *Gen. Supt.* ... Little Rock, Ark.
James Eblin, *M. M.* ... Argenta, Ark.
James Malone, *M. C. B.* ... Argenta, Ark.
Little Saw Mill Run R. R. 3 & 4-8½ g. 8 m. 4 lo. 327 c.
T. Hartley, *Gen. Man.* ... Banksville, Pa.
Long Island R. R. 4-8½ g. 352 m. 92 lo. 953 cars.
I. D. Barton, *Gen. Supt.* Long Island City, N. Y.
Benj. Norton, *Pur. Agt.* Long Island City, N. Y.
C. A. Thompson, *M. M. & C. B.* ... do.
W. B. Turner, *M. M.* ... Hunter's Point, L. I.
O. Fairhurst, *M. M.* ... Greenpoint, L. I.
Longview & Sabine Valley R. R. (*See Gal. Sab. & St. L.*)
Louisiana W'n R. R. (*See Cen. Pac.; (G., H. & S. A. Div.*)
Louisville, Cin. & Lexington R. R. (*See Louis. & N.*)
Louis., Evans. & St. L. Ry. 4-8½ g. 254 m. 34 lo. 1,032 c.
Webster Snyder, *Gen. Man.* ... Louisville, Ky.
W. H. Field, *Pur. Agt.* ... Louisville, Ky.
F. M. Mast, *M. M.* ... Evansville, Ind.
Louisville, New Albany & Chicago Ry.
4-8½ g. 470 miles 56 lo. 3,700 cars.
John MacLeod, *Gen. Supt.* ... Louisville, Ky.
G. C. Breed, *Pur. Agt.* ... Louisville, Ky.
Josiah Bettis, *M. M. & C. B.* ... New Albany, Ind.
Nor. Div.: W. G. Sala, *Supt.* ... Chicago, Ill.
So. Div.: W. N. Marshall, *Supt.* New Albany, Ind.
Louisville, New Orleans & Tex. Ry. 450 m. In progress.
R. T. Wilson, *Dir.* 2 Exchange Ct., New York.
Louisville & Nashville R. R.
5 g. 2,090 m. 367 lo. 11,353 cars.
Milton H. Smith, *Gen. Man.* ... Louisville, Ky.
P. P. Huston, *Pur. Agt.* ... Louisville, Ky.
D. W. C. Rowland, *Gen. Supt. Trans.* Louisville, Ky.
Reuben Wells, *Supt. Mach.* ... Louisville, Ky.
Louisv. Divs.: and Louisv., Cin. & Lex. Ry (Cin. Div.)
J. G. Metcalf, *Supt. Trans.* ... Louisville, Ky.
P. Leeds, *M. M.* (Lo. Div.) ... Louisville, Ky.
J. W. Luttrell, *M. M.* (Cin. Div.) Louisville, Ky.
J. G. Clifford, *M. M.* (2d & C. Div.) Bowling Grn. Ky.
Henderson Div.: L. Hege, *Supt.* ... Henderson, Ky.
W. P. Pike, *M. M.* ... Henderson, Ky.
Nash. & D. Div.: J. Geddes, *Supt.* Nashville, Tenn.
M. M. ... Nashville, Tenn.
S. & N. A. Div.: E. Marsh, *Supt.* Birmingham, Ala.
C. W. White, *M. M.* ... Birmingham, Ala.
Mob. & M.; N. Div. Pens. & Sel.; Sl. & Mont. R. Rs.:
M. S. Belknap, *Supt.* ... Montgomery, Ala.
J. N. Hall, *M. M.* (Mont. Shops) Montgomery, Ala.
N. O. Div.: J. T. Harrahan, *Supt.* New Orleans, La.
Wm. Adair, *M. M.* ... Mobile, Ala.
Memp. Div.: W. Colcamp, *Supt.* Memphis, Tenn.
J. V. Slusser, *M. M.* ... Memphis, Tenn.
St. L. Div.: J. Montgomery, *Supt.* Evansville, Ind.
Thos. Walsh, *M. M.* ... Mt. Vernon, Ill.
Pensacola and So. Div. Pens. & Selma Rds.:
E. O. Saltmarsh, *Supt.* ... Pensacola, Fla.
R. B. Small, *M. M.* ... Pensacola, Fla.
Louisville & Wadley R. R. 5 g. 10 m. 1 lo. 5 c.
J. H. Wilkins, *Supt. & Pur. Agt.* Louisville, Ga.

M

Macon & Brunswick R. R.
(*See E. Tenn., Vir. & Ga.; At. & Ga. Divs.*)
Maine Central R. R. 4-8½ g. 465 m. 59 lo. 1,335 c.
Payson Tucker, *Gen. Man.* ... Portland, Me.
Ira K. Russell, *M. M.* ... Waterville, Me.
C. H. Kenison, *M. C. B.* ... Augusta, Me.
Eastern Maine. 3 g. 19 m. 2 lo. 40 c.
L. L. Lincoln, *Supt.* ... Bucksport, Me.
Manchester & Keene R. R. 4-8½ g. 30 m. (*See Concord.*)
Manchester & Lawrence R. R. ... (*See Concord.*)
Manchester & North Weare R. R. ... (*See Concord.*)
Manhattan Ry. 4-8½ g. 32 m. 219 lo. 630 pass. c.
Frank K. Hain, *Gen. Man.* ... New York, N. Y.
C. L. Green, *Supt.* ... New York, N. Y.
T. W. Peeples, *M. M.* ... New York, N. Y.
H. A. Webster, *M. C. B.* ... New York, N. Y.
Manhattan, Alma & Burlingame Ry. (*See A., T. & S. F.*)
Manitoba Southwestern Colonization Ry.
4-8½ g. 52 m. 3 lo. 125 cars.
J. M. Eagan, *Gen. Supt.* ... Winnipeg, Man.
Chas. Newell, *M. M.* ... Winnipeg, Man.
Marietta & Cincinnati R. R. (*See Cin. Wash. & Balt.*)
Marietta & North Georgia R. R. 3 g. 66 m. 3 lo. 7 c.
J. B. Glover, *Supt. & P. Agt.* ... Marietta, Ga.
E. A. Withers, *M. M.* ... Marietta, Ga.
Marquette, Houghton & Ontonagon R. R.
4-8½ g. 100 m. 42 lo. 2,530 cars.
Samuel Schoch, *Gen. Man.* ... Marquette, Mich.
M. B. McGee, *Pur. Agt.* ... Marquette, Mich.
W. H. Williams, *M. M.* ... Marquette, Mich.
H. D. Lyons, *M. C. B.* ... Marquette, Mich.
Maryland Central R. R. 3 g. 27 m. 4 lo. 56 cars.
S. G. Boyd, *Supt.* ... Baltimore, Md.
Massachusetts Central R. R. 4-8½ g. 48 m. 5 l. 81 c.
E. G. Allen, *Supt. & Pur. Agt.* ... Boston, Mass.
E. A. Walker, *M. M.* ... So. Sudbury, Mass.
McComb, Deshler & Toledo R. R.
(*See Cin., Ham. & Day.; D. & M. Div.*)
Meadville Ry. (*See Penna. Co.'s Rds.*; (2) *Div.*)
Memphis & Charleston R. R. (*See E. Tenn., Va. & Ga.*)
Memphis & Lit. Rock R. R. 5 g. 135 m. 14 lo. 299 c.
E. K. Sibley, *G. Man. & P. A.* Little Rock, Ark.
H. G. Fleming, *Supt.* ... Memphis, Tenn.
Thos. Bennett, *M. M.* ... Argenta, Ark.
P. Twitchell, *M. C. B.* ... Argenta, Ark.
Mexican Ry. 4-8½ g. 293 m. 42 lo. 610 cars.
F. W. Jackson, *Gen. Man.* ... Mexico, Mex.
Mexican Central Ry. 4-8½ g. 680 m. 73 lo. 818 c.
Howard Hinckley, *Pur. Agt.* ... Boston, Mass.
Main L. Div.: 309 m.
Rudolph Fink, *Gen. Man.* ... City of Mexico.
J. H. Garner, *Supt. Trans.* ... City of Mexico.
F. W. Johnstone, *M. M.* ... City of Mexico.
J. H. O'Brien, *M. C. B.* ... City of Mexico.
Chihuahua Div.: 371 m.
D. B. Robinson, *G. Supt.* El Paso del Norte, Mex.
Supt. R. S. El Paso del Norte, Mex.
Tampico Div.: 262 m. In progress.
Edward A. Whorf, *Supt.* ... Tampico, Mex.
Mexican National Ry. 3 g. 766 m. 50 lo. 1,283 c.
Texas Mexican Ry. 3 g. 171 m. 10 lo. 212 c.
G. C. Gardner, *Gen. Man.* ... New York, N. Y.
J. Dougherty, *Pur. Agt.* ... New York, N. Y.
Galv. Div. T. M. Ry.: M. Quin, *Supt.* Galveston, Tex.
No. Div. Mex. Nat. Ry. & So. Div. Tex. Mex. Ry.
F. A. Lister, *Supt.* ... Laredo, Texas.
P. J. Milan, *M. M. & C. B.* Corpus Christi, Tex.
So. Div. M. N. Ry.: W. E. Lewis, *Supt.* Mexico, Mex.
J. M. Winslow, *M. M.* ... Mexico, Mex.
Mat. Div.: F. E. Butterfield, *Supt.* Matamoras, Mex.
Mexican, Oriental, Inter-Oceanic & International R. R. 1,400 miles. In progress.
G. M. Dodge, *Pres.* 195 B'way, New York, N. Y.
Michigan Cen. R. R. 4-8½ g. 1,485 m. 357 lo. 11,284 c.
H. B. Ledyard, *Gen. Man.* ... Detroit, Mich.
Allan Bourn, *Pur. Agt.* ... Detroit, Mich.
S. H. Edgerly, *Gen. M. M.* ... Jackson, Mich.
Robert Miller, *Gen. M. C. B.* ... Detroit, Mich.
(1) Lines West of Detroit River:
E. C. Brown, *Gen. Supt.* ... Detroit, Mich.
East. Div.: D. S. Sutherland, *Supt.* Detroit, Mich.
Bay City, Saginaw & Mackinaw Divisions:
W. A. Vaughan, *Supt.* ... Bay City, Mich.
C. E. Smart, *M. M.* ... Bay City, Mich.
Main Line; Gr. Rap.; So. Bend; and So. Hav. Divs.:
C. B. Bush, *Supt.* ... Jackson, Mich.
W'n Divs.: R. H. L'Hommedieu, *Supt.* Chicago, Ill.
(2) Lines East of Detroit River:
W. P. Taylor, *Gen. Supt.* ... Buffalo, N. Y.
E. P. Murray, *Supt.* ... St. Thomas, Ont.
Rob't Potts, *M. C. B.* ... St. Thomas, Ont.
Middleburg & Schoharie; and Schoharie Valley R. Rs. 4-8½ g. 11 m. 2 lo. 6 cars.
P. S. Danforth, *Gen. Supt.* ... Middleburg, N. Y.
Midland of Canada. 4-8½ g. 452 m. 48 lo. 1,423 c.
Geo. A. Cox, *Gen. Man.* ... Peterborough, Ont.
W. B. Ferguson, *Gen. Supt.* Peterborough, Ont.
C. H. Crofts, *Storekeeper* ... Peterborough, Ont.
J. D. Barnett, *Mech. Supt.* ... Port Hope, Ont.
Edward Douglas, *M. C. B.* ... Port Hope, Ont.
H. Harry, *M. C. B.* ... Lindsay, Ont.
Tor. & Nipissing Div.: J. Haggas, *M. M.* Uxbridge, Ont.
Chas. E. Caton, *M. C. B.* ... Uxbridge, Ont.
Midland No. Carolina Ry. 5 g. 95 m. 9 lo. 82 cars.
Atlantic & North Carolina Ry. 22 m.
John Gatling, *Gen. Man.* ... Newbern, N. C.
J. A. Bryan, *Supt.* ... Newbern, N. C.
D. J. Sprague, *Pur. Agt.* ... New York, N. Y.
B. Manly, *Supt. of Mach.* ... Newbern, N. C.
Milwaukee, Lake Shore & Western Ry.
4-8½ g. 322 m. 40 lo. 1,536 cars.
H. G. H. Reed, *Gen. Man. & P. Agt.* Milwaukee, Wis.
J. Donahue, *Supt.* ... Milwaukee, Wis.
Chas. S. Rayden, *Asst. Supt.* ... Manitowoc, Wis.
David B. Curtis, *Asst. Supt.* ... Oshkosh, Wis.
John Hickey, *M. M.* ... Manitowoc, Wis.
Milwaukee & Northern and Wisconsin & Michigan R. Rs. 4-8½ g. 204 m. 15 l. 430 cars.
C. F. Dutton, *Gen. Supt.* ... Milwaukee, Wis.
N. S. Kimball, *M. M.* ... Green Bay, Wis.
Mineral Range R. R. 3 g. 13 m. 4 lo. 43 cars.
Chas. E. Holland, *Pr. & Supt.* ... Hancock, Mich.
W. H. Carr, *Pur. Agt.* ... Hancock, Mich.
T. J. Shilburn, *M. M. & C. B.* ... Hancock, Mich.
Minneapolis, Lyndale & Minnetonka Ry.
3 g. 20 miles 4 motors 1 lo. 35 cars.
William McCrory, *Man.* ... Minneapolis, Minn.
T. W. Heintzelman, *M. M.* ... Minneapolis, Minn.
Minneapolis & St. L. Ry. 4-8½ g. 425 m. 60 lo. 2,046 c.
W. H. Truesdale, *Supt.* ... Minneapolis, Minn.
Geo. F. Wilson, *Supt. of M.* Minneapolis, Minn.
Mississippi, Terre Aux Boeufs & Lake R. R.
29 miles. In progress.
M. R. Spelman, *Supt.* ... New Orleans, La.
Mississippi & Tenn. R. R. 4-8½ g. 101 m. 12 lo. 194 c.
M. Burke, *Gen. Supt.* ... Memphis, Tenn.
J. C. Ramsey, *M. M.* ... Memphis, Tenn.
S. J. Bolton, *M. C. B.* ... Memphis, Tenn.
Missouri, Kansas & Texas Ry. (*See Mo. Pac.*; (2) *Div.*)
Missouri Pacific Ry. (Leased and operated lines.)
4-8½ g. 6,005 m. 697 lo. 19,748 cars.
A. A. Talmage, *Gen. Man.* ... St. Louis, Mo.
R. B. Lyle, *Pur. Agt.* ... St. Louis, Mo.
(1), (2) and (3) Divs.:
John Hewitt, *Supt. Mach.* ... St. Louis, Mo.
John Hodge, *Supt. Car Dep.* ... St. Louis, Mo.
(4), (5) and (6) Divs.:
O. A. Haynes, *S. M. P. & M.* ... St. Louis, Mo.
H. H. Sessions, *M. C. B.* ... St. Louis, Mo.
(1) Missouri Pacific Ry. 1,025 m. 152 lo. 4,813 cars.
Walter Cumming, *Supt.* ... Sedalia, Mo.
Le Roy Bartlett, *M. M.* ... St. Louis, Mo.
Geo. Walshe, *M. M.* ... Sedalia, Mo.
W'n Div.: W. W. Fagan, *Supt.* ... Atchison, Kan.
(2) Mo., Kan. & Tex. Ry. 1,308 m. 140 lo. 4,248 cars.
S. Irvin, *Asst. Supt. Car Dep.* ... Sedalia, Mo.
J. B. Vandyne, *Supt.* ... Parsons, Kan.
J. W. Haines, *M. M.* ... Parsons, Kan.
(3) Central Branch Un. Pac. R. R. 388 m. 30 lo. 601 c.
W. W. Fagan, *Supt.* ... Atchison, Kan.
H. V. Faries, *M. M.* ... Atchison, Kan.
J. W. Blackburn, *A. Supt. Car D.* Atchison, Kan.
(4) St. L., I. Mt. & So'n Ry. 909 m. 141 lo. 4,839 c.
Wm. Kerrigan, *Supt.* ... St. Louis, Mo.
St. Louis Div.: W. H. Harris, *M. M.* De Soto, Mo.
Ark. Div.: J. J. Frey, *Asst. Supt.* Little Rock, Ark.
R. M. Richardson, *M. M.* ... Little Rock, Ark.
(5) Internat'l & Gr. No'n R. R. 891 m. 74 lo. 1,597 c.
Jos. Herrin, *Supt.* ... Palestine, Tex.
O. H. Johnson, *M. M.* ... Palestine, Tex.
(6) Texas & Pacific Ry. 1,480 m. 143 lo. 3,438 c.
J. M. Eddy, *Supt.* ... Dallas, Tex.
Eastern, New Or. & Trans Continental Divs.:
J. Williams, *Supt.* ... Marshall, Tex.
Perry Stevens, *M. M.* ... Marshall, Tex.
E. R. Smith, *M. M. & C. B.* ... New Orleans, La.
Rio Gr. Div.: J. C. Barber, *Supt.* Big Springs, Tex.
Wm. Foley, *M. M.* ... Big Springs, Tex.
Mobile & Ala. Grand Trunk R. R. 5 g. 59 m. 6 lo. 23 c.
Wm. H. Pratt, *Trustee* ... Mobile, Ala.
Mobile & Girard R. R. 5 g. 84 m. 7 lo. 112 cars.
W. L. Clark, *Gen. Supt.* ... Columbus, Ga.
J. C. Albrecht, *M. M.* ... Columbus, Ga.
A. J. Nix, *M. C. B.* ... Columbus, Ga.
Mobile & Montgomery Ry. ... (*See Louis. & Nash.*)
Mobile & Northwestern R. R. 3 g. 31 m. 3 lo. 16 c.
Thomas T. A. Lyon, *Pres.* ... Glendale, Miss.
Mobile & Ohio R. R. 5 g. 528 m. 75 lo. 1,353 cars.
G. Jordan, *V.-Pr. & Gen. Man.* ... Mobile, Ala.
F. Jordan, *Pur. Agt.* ... Mobile, Ala.
M. T. Carson, *Gen. M. M.* ... Whistler, Ala.
J. P. Booth, *M. C. B.* ... Whistler, Ala.
So'n Div.: J. G. Motley, *Supt.* ... Mobile, Ala.
John Fitzgerald, *M. M.* ... Macon, Miss.
No'n Div.: E. S. Rosford, *Supt.* ... Jackson, Tenn.
M. M. ... Jackson, Tenn.
Mobile & Spring Hill R. R. 5 g. 8 m. 1 lo. 16 cars.
F. Ingate, *Supt.* ... Mobile, Ala.
Moline & Southeastern R. R. 3-6 g. 8 m. 2 lo. 26 c.
R. Batterly, *Gen. Man.* ... Coal Valley, Ill.
Mont Alto R. R. 4-8½ g. 21 m. 2 lo. 8 cars.
G. B. Wiestling, *Supt. & P. A.* ... Mont Alto, Pa.
Montgomery & Eufaula Ry. ... (*See Cen. of Ga.*)
Montgomery Southern Ry. 3 g. 20 m. 1 lo. 15 cars.
S. D. Hubbard, Jr., *Gen. Man.* Montgomery, Ala.
Montour R. R. 4-8½ g. 12 m. 2 lo. 130 cars.
C. R. Brown, *Supt. & Pur. Agt.* ... Imperial, Pa.
Henry Newman, *M. C. B.* ... Imperial, Pa.
Montpelier & Wells Riv. R. R. 4-8½ g. 38 m. 3 lo. 86 c.
W. A. Stowell, *Supt.* ... Montpelier, Vt.
Montreal, Portland & Boston Ry. (*See Passumpsic.*)
Montreal & Sorel Ry. 4-8½ g. 47 m. 3 lo. 35 c.
C. N. Armstrong, *G. M. & Pur. Agt.* Sorel, Que.
J. F. Armstrong, *Gen. Supt.* ... Sorel, Que.
G. W. Pangborn, *M. M.* ... Sorel, Que.
Montrose Ry. 3 g. 28 m. 3 lo. 24 cars.
T. G. Walter, *Gen. Supt.* ... Tunkhannock, Pa.
Morgan's Louis. & Tex. R. R. 4-8½ g. 266 m. 44 l. 885 c.
J. Kruttschnitt, *Supt.* ... New Orleans, La.
C. Trumpy, *Pur. Agt.* ... New Orleans, La.
N. Tilton, *M. M.* ... Algiers, La.
Wm. O'Brien, *M. C. B.* ... Algiers, La.
Mount Washington R. R. 5-3 g. 3 m. 6 lo. 6 cars.
Walter Aiken, *Gen. Man.* ... Franklin, N. H.
Muncy Creek Ry. (*See W'mspt. & No. Br.*)

N

Nantasket Beach R. R. 4-8½ g. 6 m. 5 lo. 25 c.
George L. Keyes, *Gen. Supt.* ... Boston, Mass.
Nantucket R. R. 3 g. 4 m. 1 lo. 5 cars.
Philip H. Folger, *Supt.* ... Boston, Mass.
Napanee, Tamworth & Quebec Ry. In progress.
Ed. W. Rathbun, *Man. Dir.* ... Deseronto, Ont.
R. A. Carter, *Supt.* ... Deseronto, Ont.
Narragansett Pier R. R. 4-8½ g. 8 m. 2 lo. 11 c.
G. T. Lanphear, *Supt. & Pur. Agt.* Peacedale, R. I.
Nashua & Rochester R. R. (*See Wor. & Nash.*)
Nashville, Chattanooga & St. Louis Ry.
5 g. 539 miles 87 lo. 1,979 cars.
J. W. Thomas, *G. Man. & P. Agt.* Nashville, Tenn.
M. J. C. Wrenne, *Supt.* ... Nashville, Tenn.
James Cullen, *M. M. & C. B.* ... Nashville, Tenn.
Nashville & Florence R. R. 5 g. 20 m.
J. T. Craik, *Supt.* ... Columbia, Tenn.
Natchez, Jackson & Col. R. R. 3-6 g. 100 m. 7 lo. 72 c.
E. D. Frost, *Gen. Supt.* ... Natchez, Miss.
National Car Company 4,000 freight cars.
L. Millis, *Pres.* ... Boston, Mass.
Stewart Stranahan, *Sec. & Tr.* St. Albans, Vt.
John B. Fletcher, *Supt.* ... St. Albans, Vt.
Naugatuck R. R., 4-8½ g. 61 miles, 14 lo. 384 cars.
Geo. W. Beach, *Supt.* ... Waterbury, Ct.
Henry Hanford, *M. M.* ... Bridgeport, Ct.
Geo. W. Gray, *M. C. B.* ... Bridgeport, Ct.
Nebraska, Topeka, Iola & Memphis R. R. 4-8½ g. 16 m.
H. M. Clarke, *Gen. Man.* ... Girard, Kan.
C. H. Malin, *Gen. Supt.* ... Girard, Kan.
Nevada Central R. R. (*See Union Pac.;* (7) *Div.*)
Nevada County N. G. R. R. 3 g. 23 m. 3 lo. 46 cars.
John F. Kidder, *Supt.* ... Grass Valley, Cal.
Jas. McCormick, *M. M. & C. B.* Grass Valley, Cal.
Nevada & Oregon R. R. 3 g. 30 m. 25 cars.
D. W. Balch, *Supt.* ... Reno, Nev.
New Brunswick Ry. 4-8½ g. 419 m. 20 lo. 357 cars.
E. R. Burpee, *Gen. Man.* ... Woodstock, N. B.
Jesse Mathews, *M. M.* ... Gibson, N. B.
T. N. Burpee, *M. C. B.* ... Gibson, N. B.
J. J. Seely, *Pur. Agt.* ... Gibson, N. B.
Thos. Armstrong, *M. M.* ... St. Andrew's, N. B.
G. Houlton, *M. C. B.* ... St. Andrew's, N. B.
New Brunswick & Can. Ry. (*See New Brun.*)
New Canaan R. R. 4-8½ g. 8 m. 2 lo. 4 cars.
Wm. St John, *Supt.* ... New Canaan, Ct.
New Castle R. R. 3-6 g. 5 m. 2 lo. 76 cars.
Geo. Pearson, *Gen. Man.* ... New Castle, Pa.
New Castle & Beaver Valley R. R. (*See Penna. Co.*)
New Haven & Derby R. R. 4-8½ g. 13 m. 4 lo. 70 c.
E. S. Quintard, *Supt.* ... New Haven, Conn.
J. M. Whitlock, *M. M. & C. B.* New Haven, Conn.
New Haven & No'mpton. 4-8½ g. 170 m. 27 lo. 598 c.
S. B. Opdyke, Jr., *Supt.* ... New Haven, Ct.
C. N. Yeamans, *Pur. Agt.* ... New Haven, Ct.
Henry Fox, *M. M.* ... New Haven, Ct.
John Sweeny, *M. C. B.* ... New Haven, Ct.
New Jersey & New York Ry. 4-8½ g. 37 m. 6 lo. 40 c.
J. D. Hasbrouck, *Gen. Man.* Jersey City, N. J.
J. S. Drake, *Supt. & M. M.* ... Hillsdale, N. J.
L. B. Van Wagonen, *M. C. B.* ... Hillsdale, N. J.
N. J. Southern Ry. (*See Phil. & Read.; N. J. So. Div.*)
New London Northern R. R. (*See Central Ver.*)
New Orleans Pacific Ry. (*See Mo. Pac.*; (6) *Div.*)
New Orleans & Carrollton R. R.
4-8½ g. 15 m. 12 lo. 79 cars.
C. V. Haile, *Supt.* ... New Orleans, La.
John Dahmer, *M. M.* ... New Orleans, La.
Jas. Thorn, *M. C. B.* ... New Orleans, La.
New Orleans & Mobile R. R. (*See Louis. & Nash.*)
N. O. & Northeastern R. R. (*See Cin., N. O. & Tex. Pac.*)
New Orleans & Selma R. R. 5 g. 21 m. 1 lo. 8 cars.
L. B. Schofield, Supt. ... Selma, Ala.
N. Y. Central & Hudson River R. R.
4-8½ g. 983 m. 676 lo. 25,161 cars.
J. M. Toucey, *Gen. Supt.* ... New York, N. Y.
R. C. Moore, *Pur. Agt.* ... New York, N. Y.
Wm. Buchanan, *Supt. M. P.* ... New York, N. Y.
L. Garey, *Supt. Car Dept.* ... New York, N. Y.
N. Y. & Har. Div.: C. M. Bissell, *Supt.* do.
P. McQ. Gibson, *M. M.* ... New York, N. Y.
C. E. Garey, *M. C. B.* ... Morrisania, N. Y.
Hud. Riv. Div.: C. M. Bissell, *Supt.* N. York, N. Y.
Peter Smith, *M. C. B.* ... New York, N. Y.
E'n Div.: Zenas C. Priest, *Supt.* ... Utica, N. Y.
John Ortton, *M. M.* ... West Albany, N. Y.
D. Holt, *M. C. B.* ... West Albany, N. Y.
W'n Div.: Geo. H. Burrows, *Supt.* Rochester, N. Y.
S. L. White, *M. M.* ... Syracuse, N. Y.
Amos Gould, *M. M.* ... E. Buffalo, N. Y.
E. A. Olmstead, *M. C. B.* ... E. Buffalo, N. Y.
C. H. Burchard, *M. C. B.* ... E. Rochester, N. Y.
Rd. Donaby, *M. C. B.* ... Niagara Falls, N. Y.
N. Y. Chic. & St. L. Ry. 4-8½ g. 513 m. 115 lo. 4,838 c.
Lewis Williams, *Gen. Man.* ... Cleveland, O.
Jno. Mackenzie, *Supt. M. P.* ... Cleveland, O.
Eas'tn Div.: G. H. Kimball, *Supt.* ... Cleveland, O.
E. A. Miller, *M. M.* ... Conneaut, O.
West'n Div.: A. H. Evans, *Act. Supt.* Chicago, Ill.
Jas. Eckford, *M. M.* ... Bellevue, O.
New York City & Northern. 4-8½ g. 54 m. 17 lo. 368 c.
Frank S. Gannon, *Gen. Supt.* High Bridge, N. Y.
Theo. Wheeler, *M. M.* ... High Bridge, N. Y.
New York, Lackawanna & W'n Ry. (*See Del., L. & W.*)
New York, Lake Erie & Western R. R.
Robt. Harris, *V. Pr. & G. Man.* New York, N. Y.
(1) N. Y., L. E. & W. Div.: 4-8½ g. 1,073 m. 576 lo. 30,553 c.
E. S. Bowen, *Gen. Supt.* ... New York, N. Y.
J. A. Hardenburgh, *Pur. Agt.* New York, N. Y.
F. M. Wilder, *Supt. M. P. & M.* ... Susqueh'a, Pa.
E'n Div.: E. O. Hill, *Supt.* ... Jersey City, N. J.
J. H. Vreeland, *M. M.* ... Jersey City, N. J.
J. N. Mileham, *M. C. B.* ... Jersey City, N. J.
Del. Div.: W. J. Murphy, *Supt.* Port Jervis, N. Y.
J. Van Vechten, *M. M. & C. B.* Pt. Jervis, N. Y.
Susq. Div.: J. Jolls, *Supt.* ... Elmira, N. Y.
V. Blackburn, *M. M.* ... Susquehanna, Pa.
D. B. Goodell, *M. C. B.* ... Elmira, N. Y.
Buf. & R. Divs.: Chas. Neilson, *Supt.*; and
G. B. Ross, *M. M.* ... Buffalo, N. Y.
M. Wilder, *M. C. B.* ... Buffalo, N. Y.
B. & S.-W. Div.: C. A. Brunn, *Supt.* do.
W'n Div.: W. B. Coffin, *Supt.* Hornellsville, N. Y.
Geo. H. Griggs, *M. M.* ... Hornellsville, N. Y.
N. Y. & Greenwood L. Ry. 4-8½ g. 44 m. 8 lo. 53 c.
Stephen Smith, *Supt.* ... Jersey City, N. J.
G. A. Hill, *M. M.* ... Pompton, N. J.
(2) N. Y., Pa. & O. Div.: 4-8½ g. 565 m. 218 lo. 7,394 c.
J. M. Ferris, *Gen. Man.* ... Cleveland, Ohio.
J. H. Holway, *Pur. Agt.* ... Cleveland, Ohio.
Wm. Fuller, *Gen. M. M. & C. B.* ... Cleveland, O.
S. V. Smith, *Asst. Gen. M. C. B.* ... Kent, Ohio.
E'n Div.: A. L. Dunbar, *Supt.* ... Meadville, Pa.
J. A. Cooper, *M. M.* ... Meadville, Pa.
D. S. Dockstader, *M. C. Rep.* ... Meadville, Pa.
J. T. Fosdick, *For. Car Rep.* Salamanca, N. Y.
W'n Div.: T. A. Phillips, *Supt.* ... Galion, O.
Wm Hill, *M. M.* ... Galion, O.
J. W. Holmes, *For. Car Rep.* ... Galion, O.
Geo. Wilson, *For. Car Rep.* ... Dayton, Ohio.
Maho'g Div.: N. F. Wood, *Supt.* ... Cleveland, O.
N. Wright, *M. M.* ... Cleveland, O.
C. N. Thorp, *M. C. Rep.* ... Cleveland, O.
New York, New Haven & Hartford R. R.
4-8½ g. 203 m. 123 lo. 2,768 cars.
E. M. Reed, *V. P. & Gen. Man.* New Haven, Ct.
R. N. Dowd, *Pur. Agt.* ... New Haven, Ct.
N. Y. & N. H. Div.: W. H. Stevenson, *Supt.* ... N. Y.
Shore Line and Air Line Divs.:
O. M. Shepard, *Supt.* ... N. Haven, Ct.
H. Kettendorf, *Supt. M. P.* ... New Haven, Ct.
Jas. Denver, *M. C. B.* ... New Haven, Ct.
Hart. Div.: C. S. Davidson, *Supt.* ... Hartford, Ct.
John Henny, Jr., *Supt. M. P. & M. C. B.* ... do.
N. Y., Ontario & Western Ry. (*See N. Y. W. Sh. & Buf.*)
N. Y., Pennsylvania & Ohio R. R. (*See N. Y., L. E. & W.*)
New York, Philadelphia & Norfolk R. R.
4-8½ g. 10 m. 1 lo. 4 cars.
J. L. Bates, *Supt.* ... Pocomoke City, Md.
New York, Providence & Boston R. R.
4-8½ g. 83 m. 20 lo. 430 cars.
J. B. Gardner, *Supt.* ... Providence, R. I.
Giles F. Ward, *Pur. Agt.* ... Stonington, Conn.
J. H. Anderson, *M. M. & C. B.* Providence, R. I.
N. Y., Susquehanna & W'n. 4-9 g. 147 m. 28 lo. 991 c.
F. A. Potts, *Gen. Man.* ... New York, N. Y.
C. D. McKelvey, *Asst. Supt.* Jersey City, N. J.
C. T. Demarest, *Pur. Agt.* ... New York, N. Y.
W. C. Ennis, *M. M. & C. B.* ... Wortendyke, N. J.
New York, Texas & Mexican Ry.
4-8½ g. 92 m. 6 lo. 95 cars.
P. Moneta, *Gen. Man.* ... Victoria, Tex.
C. L. Leslie, *Gen. Supt.* ... Rosenberg, Tex.
E. A. Campbell, *M. M.* ... Victoria, Tex.
New York, West Shore & Buffalo and
New York, Ontario & Western Rys.
4-8½ g. 850 m. 98 lo. 2,907 c.
Chas. Paine, *Gen. Man.* ... New York, N. Y.
J. E. Childs, *Gen. Supt.* ... New York, N. Y.
P. S. Bemis, *Pur. Agt.* ... New York, N. Y.
R. H. Soule, *Supt. M. P.* ... New York, N. Y.
Mid. Div.: N. R. Hankins, *Supt.* Middletown, N. Y.
Edw. Minshull, *M. M. & C. B.* Middletown, N. Y.
No'n Div.: C. W. Lanpher, *Supt.* ... Norwich, N. Y.
So. Div.: E. Canfield, *Supt.* ... Tappan, N. Y.
Harry Linn, *M. M.*
Walkill Ry. G. H. Graves, *Supt.* ... Rondout, N. Y.
Syr., Ont. & N. Y.: A. Allen, *Supt.* Syracuse, N. Y.
George W. West, *M. M.* ... Syracuse, N. Y.
Wm. J. McMichael, *M. C. B.* ... Syracuse, N. Y.
N. Y., Woodhaven & Rockaway R. R. (*See Long Is.*)
N. Y. & Greenwood Lake Ry. (*See N. Y., L. E. & W.*)
N. Y. & Manhattan Beach Ry. (*See Long Island.*)
New York & Long Branch R. R. (*See Phil. & Read.*)
New York & New England R. R.
4-8½ g. 478 m. 127 lo. 3,399 cars.
S. M. Felton, Jr., *Gen. Man.* ... Boston, Mass.
W. W. McKim, *Pur. Agt.* ... Boston, Mass.
Ross Kells, *Supt. M. P. & M.* ... Boston, Mass.
A. K. Mansfield, *Mech. Eng.* ... Boston, Mass.
W. G. Tabor, *M. M.* ... Boston, Mass.
H. E. Barker, *Gen. Fore.* ... Norwood, Mass.
East Div: C. C. F. Bent, *Supt.* ... Boston, Mass.
Nor. Div.: P. St. M. Andrews, *Supt.* ... Norwich, Ct.
W. A. Stone, *M. M.* ... Norwich, Ct.
Prov. Div.: L. W. Palmer, *Supt.* ... Providence, R. I.
Hfd. Div.: E. Holbrook, *Supt.* ... Hartford, Ct.
E. M. Humstone, *M. M.* ... Hartford, Ct.
D. F. Andregg, *For. C. Dept.* ... Hartford, Ct.
New York & Sea Beach R. R. 4-8½ g. 6 m. 4 lo. 40 c.
C. W. Douglass, *Gen. Man.* ... Bay Ridge, N. Y.
W. A. Sheldon, *Supt.* ... Bay Ridge, N. Y.
Newark, Somerset & Straitsville R. R. (*See B. & O.*)
Newburg, Dutchess & Conn. R. R. 4-8½ g. 59 miles.
C. L. Kimball, *Gen. Supt.* ... Matteawan, N. Y.
W. G. Van Buskirk, *M. M. & C. B.*,
Dutchess Junction, N. Y.
Newfoundland Ry. 3-6 g. 45 m. 7 lo. 41 c.
C. X. Hobbs, *Gen. Man.* ... St. John's, N'f'd.
Norfolk Southern R. R. 4-8½ g. 95 m. 11 lo. 182 c.
M. K. King, *Gen. Man. & Pur. Agt.* Norfolk, Va.
J. S. Whitworth, *M. M. & C. B.* ... Norfolk, Va.
Norfolk & Ocean View Narrow Gauge R. R.
3 g. 8 m. 2 lo. 9 cars.
W. H. Taylor, *Pres.* ... Norfolk, Va.
Norfolk & Western R. R. (*See Shenandoah Val.*)
North-Eastern R. R. of Ga. 5 g. 72 m. 2 lo. 20 cars.
H. R. Bernard, *Supt.* ... Athens, Ga.
North-Eastern R. R. (S. C.) (*See Wil. & Wel.*)
North Pacific Coast R. R. 3 g. 84 m. 12 lo. 320 cars.
David Nye, *Gen. Supt.* ... San Rafael, Cal.
W. F. Russell, *Pur. Agt.* ... San Francisco, Cal.
J. Fowler, *M. M.* ... Saucelito, Cal.
North Shore Ry. 4-8½ g. 201 m. 36 lo. 993 c.
W. Wainwright, *Gen. Man.* ... Quebec, Can.
A. Davis, *Supt. & M. M.* ... Quebec, Can.
Northern (N. H.), and Concord & Claremont Rys.
4-8½ g. 173 m. 25 lo. 569 cars.
Geo. E. Todd, *Supt.* ... Concord, N. H.
M. M. & C. B. & Pur. Agt. ... do.
Northern (N. J.) R. R. (*See N. Y., L. E. & W'n.*)
Northern Central Ry. (*See Penna. R. R.* (6) *Div.*)
North'n Pacific R. R. 4-8½ g. 2,207 m. 222 lo. 5,201 c.
Herman Haupt, *Gen. Man.* ... St. Paul, Minn.
John H. Ames, *Gen. Pur. Agt.* ... St. Paul, Minn.
Geo. W. Cushing, *Supt. M. P., M. & R. S.* do.
(1) E'n Div.: J. T. Odell, *A. Gen. Man.* St. Paul, Minn.
H. J. Small, *A. S. Mach.* ... Brainerd, Minn.
1st Gr. Div.: M. C. Kimberly, *Supt.* St. Paul, Minn.
Frank Howard, *M. C. B.* ... Brainerd, Minn.
2d Grand Div.: J. M. Graham, *Supt.* Fargo, Dak.
A. Rupert, *M. M.* ... Fargo, Dak.
3d Gd. Div.: D. R. Taylor, *Supt.* ... Mandan, Dak.
E. F. Doran, *M. M.* ... Mandan, Dak.
4th Gr. Div.: S. R. Ainslie, *Supt.* ... Glendive, Mont.
S. L. Bean, *M. M.* ... Glendive, Mont.
G. S. La Rue, *M. M.* ... Billings, Mont.
(2) W'n Div.: J. M. Buckley, *Asst. Gen. Man.*; and
Otis Sprague, *Supt.* ... New Tacoma, W. T.
H. D. Sanborn, *Pur. Agt.* ... Portland, Ore.
W. T. Small, *A. S. Mach.* ... Sprague, W. T.
Robt. Walker, *M. C. B.* ... Sprague, W. T.
F. C. Ford, *M. M.* ... New Tacoma, W. T.
S. Wishart, *M. C. B.* ... New Tacoma, W. T.
Pend d'Ore Div.: F. F. Griffin, *Supt.* Sprague, W. T.
J. Evans, *M. M.* ... Sprague, W. T.
Northern & North-W'n Rys. 4-8½ g. 378 m. 50 lo. 1,195 c.
James Webster, *Supt.* ... Toronto, Can.
W. C. Schreeber, *Pur. Agt.* ... Toronto, Can.
P. Clarke, *M. M.* ... Toronto, Can.

O

Ogdensburg & Lake Champlain R. R.
4-8½ g. 122 m. 33 lo. 1,694 cars.
A. A. Gaddis, *Gen. Man.* ... Ogdensburg, N. Y.
Levi Hasbrouck, *Pur. Agt.* ... Ogdensburg, N. Y.
Abr. Klohs, *Supt. & M. M.* ... Malone, N. Y.
J. N. Brown, *M. C. B.* ... Malone, N. Y.
Ohio Central R. R. 4-8½ g. 325 m. 46 lo. 4,760 cars.
John E. Martin, *Gen. Man.* ... Toledo, O.
T. M. Peelar, *Supt.* ... Bucyrus, O.
F. W. Stewart, *Pur. Agt.* ... Toledo, O.
J. B. Morgan, *M. M. & C. B.* ... Bucyrus, O.
Ohio Southern R. R. (*See Ind., Bloom. & W'n.*)
Ohio & Mississippi Ry. 4-9 g. 616 m. 113 lo. 2,501 cars.
W. W. Peabody, *Gen. Man.* ... Cincinnati, O.
G. E. Atwood, *Pur. Agt.* ... Cincinnati, O.
J. H. Setchel, *Gen. M. M.* ... Cincinnati, O.
Cin. Div.: C. B. Cole, *Supt.* ... Seymour, Ind.
John Thumser, *M. M.* ... Seymour, Ind.
J. P. Coulter, *M. C. B.* ... Aurora, Ind.
Arthur Donaldson, *M. M.* ... Vincennes, Ind.
St. L. & Sp. Div.: C. M. Stanton, *Supt.* St. Louis, Mo.
J. W. Stokes, *M. M.* (Spring. Div.) ... Pana, Ill.
Louisv. Div.: C. B. Cole, *Supt.* ... Louisville, Ky.
Oil City & Chicago R. R. (*See Buff., N. Y. & Phil.*)
Oil City & Ridgway R. R. 4-8½ g. 6 m. 1 lo. 43 cars.
A. F. Kent, *Gen. Man.* ... Oil City, Pa.
Old Colony R. R. 4-8½ g. 470 m. 115 lo. 3,124 cars.
J. R. Kendrick, *Gen. Man.* ... Boston, Mass.
Main Li. Div.: J. H. French, *Supt.* ... Boston, Mass.
R. W. Husted, *Pur. Agt.* ... Boston, Mass.
J. K. Taylor, *M. M.* ... Boston, Mass.
M. C. B. ... Boston, Mass.
Cape Cod Div.: C. H. Nye, *Supt.* ... Hyannis, Mass.
No. Div.: S. A. Webber, *Supt.* ... Fitchburg, Mass.
George W. Reynolds, *M. M.* ... Taunton, Mass.
Sam. Stevens, *M. C. B.* ... Taunton, Mass.
Oregon Ry. & Navigation Co.
3 & 4-8½ g. 531 m. 52 lo. 1,288 cars.
C. H. Prescott, *Manager* ... Portland, Ore.
F. T. Dodge, *Supt.* (Riv. Div.) ... Portland, Ore.
H. S. Rowe, *Supt.* (Ry Div.) ... Portland, Ore.
J. M. Drake, *Pur. Agt.* ... Portland, Ore.
C. C. Hobart, *Gen. M. M.* ... The Dalles, Ore.
Chas. A. Phipps, *M. C. B.* ... The Dalles, Ore.
N. G. Div.: Wm. Reed, *Man.* ... Portland, Ore.
James Walch, *M. M.* ... Portland, Ore.
Oregon & California R. R. 4-8½ g. 333 m. 23 lo. 576 c.
R. Koehler, *Act. Man.* ... Portland, Ore.
J. Brandt, *Gen. Supt.* ... Portland, Ore.
A. Brandt, *M. M.* ... Portland, Ore.
Owensboro & Nashville R. R. 5 g. 44 m. 3 lo. 70 c.
O. M. Dunn, *Supt.* ... Owensboro, Ky.

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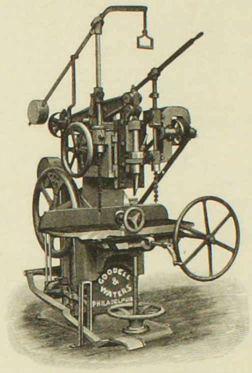

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has now an established reputation as a special machine for rapid and good work.

We have confidential statistics and facts of great practical value to customers who are about to purchase.

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is larger than ever and continually increasing in variety. It now embraces first-class machines for bandsawing, slitting and cut-off sawing, resawing and scroll sawing, jointing, grooving, molding, tenoning, turning, mortising, shaping, etc. with requisite shafting, pulleys, hangers, arbors, knives, cutters, chisels, and fixtures for railway and street car builders, ship joiners, makers of heavy and light agricultural implements, pianos, organs, clock cases, furniture, boxes, toys, modern wainscot and hard wood finish.

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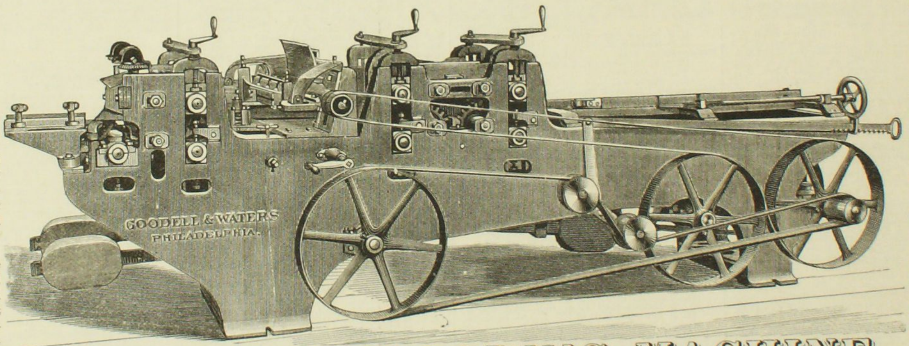
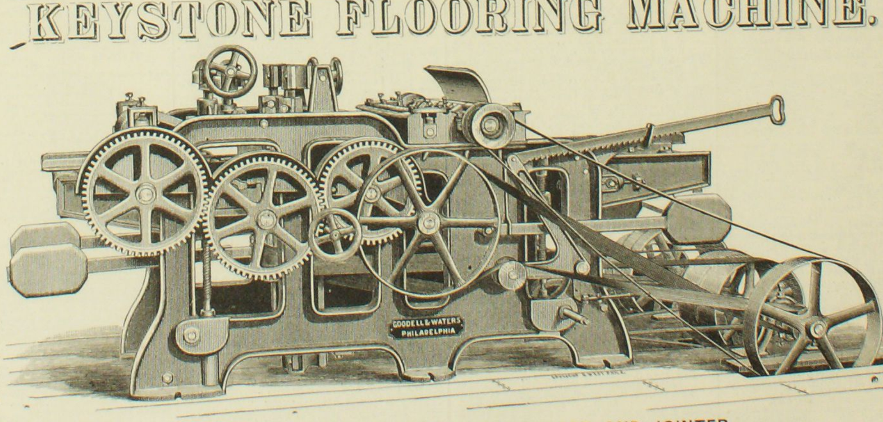


KEYSTONE FLOORING MACHINE.



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H. M. Gabel, *M. M. & C. B.*....Owensboro, Ky.
Oxford & Henderson R. R. 4-8½ g. 13 m. 2 lo. 11 c.
James A. White, *Gen. Supt.*....Henderson, N. C.
James E. Lawrence, *M. M.*....Henderson, N. C.

P

Pacific Coast Ry. 3 g. 64 m.
J. M. Fillmore, *Manager*. San Luis Obispo, Cal.
W. H. Masterman, *M. M. & C. B.* do.
Painesville & Youngstown Ry. 3 g. 65 m. 7 lo. 319 c.
R. K. Paige, *Rec. & Man.*....Painesville, O.
J. A. Newcome, *Supt.*....Painesville, O.
E. B. Baldwin, *M. M.*....Painesville, O.
Panama R. R. 5 g. 48 m. 16 lo. 608 cars.
H. A. Woods, *Supt.*....Aspinwall, U. S. Col.
E. Z. Penfield, *Pur. Agt.*....New York, N. Y.
D. P. Wright, *M. M.*....Aspinwall, U. S. Col.
Passumpsic R. R. 4-8½ g. 147 m. 28 lo. 1,101 cars.
E. Raymond, *Pres. & Pur. Agt.* Boston, Mass.
H. E. Folsom, *Supt.*....Lyndonville, Vt.
L. L. Brigham, *M. M.*....Lyndonville, Vt.
L. F. Woodard, *M. C. B.*....Lyndonville, Vt.
Paulding & Cecil Railway. 4-8½ g. 7 m. 3 lo. 28 c.
S. Frank Eagle, *Pres.*....Cecil, O.
Paw Paw and Toledo & South Haven R. Rds.
3 g. 19 m. 2 lo. 11 cars.
John Ihling, *Supt.*....Lawton, Mich.
Peach Bottom R. R. 3 g. 65 m. 6 lo. 52 cars.
G. R. Dickey, *Supt. & Pur. Agt.*....York, Pa.
E. H. Williams, *M. C. B.*....York, Pa.
W. P. Kirk, *M. M.*....Oxford, Pa.
Pemigewasset Valley R. R. 4-8½ g. 21 m. 2 lo. 127c.
J. Thomas Vose, *Pres.*....Boston, Mass.
Pennsylvania Co.'s (10) Roads.
4-9 g. 3,222 m. 920 lo. 32,809 cars.
(A) Gen. Divs. (1), (2), (3), (4) and (5).
Wm. A. Baldwin, *Gen. Man.*....Pittsburg, Pa.
John Thomas, *Gen. Supt.*....Pittsburg, Pa.
Wm. Mullins, *Gen. Pur. Agt.*....Pittsburg, Pa.
Joseph Wood, *Supt. M. P.*....Fort Wayne, Ind.
(1) Pittsburg, Ft. Wayne & Chicago Ry.
4-9 g. 468 m. 288 lo. 8,623 cars.
E'n Div.: A. B. Starr, *Supt.*....Allegheny, Pa.
Geo. J. Parkin, *M. M.*....Allegheny, Pa.
D. M. Peppard, *M. M.*....Crestline, O.
W'n Div.: C. D. Law, *Supt.*....Ft. Wayne, Ind.
F. D. Casanave, *M. M.*....Ft. Wayne, Ind.
A. H. Somers, *Gen. For. Shops*...Chicago, Ill.
(2) Ashtabula & Pittsburg, and
(3) Erie & Pittsburg R. Rds. 221 m. 29 lo. 1,362 c.
John M. Kimball, *Supt.*....Youngstown, O.
J. A. Wood, *Gen. For. Shops*....Erie, Pa.
(4) Cleveland & Pittsb'g R. R. 225 m. 97 lo. 3,534 c.
R. F. Smith, *Asst. Man.*....Cleveland, O.
Philip Bruner, *Supt.*....Wellsville, O.
W. F. Beardsley, *Mast. of Mach.* Wellsville, O.
(5) Nc-W'n Ohio Ry.: J. S. Morris, *Supt.*...Toledo, O.
(B) Gen. Divs. (6), (7), (8) and (9).
Jas. McCrea, *Gen. Man.*....Columbus, O.
Wm. Mullins, *Gen. Pur. Agt.*....Pittsburg, Pa.
E. B. Wall, *Supt. M. P.*....Columbus, O.
(6) Pittsburg, Cincinnati & St. Louis Ry.
4-9 g. 592 m. 196 lo. 5,746 cars.
Robt. Curtis, *Gen. M. M.*....Columbus, O.
P. & Col. Div.: E. B. Taylor, *Supt.* Dennison, O.
C. B. Street, *M. M.*....Dennison, O.
Thos. Chamberlain, *M. C. B.*....Columbus, O.
C. & M. V. Div.: W. F. Black, *Supt.* Zanesville, O.
Leroy Kells, *M. M.*....Cincinnati, O.
Daniel Jewell, *M. C. B.*....Lancaster, O.
Li. Mi. Div.: Ralph Peters, *Supt.*....Cincinnati, O.
Leroy Kells, *M. M.*....Cincinnati, O.
Jos. Underwood, *Gen. Foreman*, Cincinnati, O.
(7) Chicago, St. Louis & Pittsburg R. R.
4-9 g. 551 m. 139 lo. 1,788 cars.
Wm. Swanston, *Gen. M. M.* (7&8&9) Indpls., Ind.
1 & 2 Divs.: J. F. Miller, *Supt.*....Richmond, Ind.
3 & 4 Divs.: Chas. Watts, *Supt.* Logansport, Ind.
W. W. Reynolds, *M. M.*....Logansport, Ind.
Chas. H. Starr, *M. C. B.*....Logansport, Ind.
W. C. Arp, *Gen. For.*....Indianapolis, Ind.
(8) Indianap. & Vincennes Rd. 117 m. 11 lo. 303 cars.
Jas. J. Turner, *Supt.*....Indianapolis, Ind.
(9) Jeffersonville, Madison & Indianapolis R. R.
4-9 g. 217 m. 47 lo. 784 cars.
E. W. McKenna, *Supt.*....Louisville, Ky.
Edw. Austin, *M. C. B.*....Jeffersonville, Ind.
(C) (10) Terre Haute & Indianapolis R. R.
4-9 g. 387 m. 88 lo. 3,702 cars.
Joseph Hill, *Gen. Supt.*....St. Louis, Mo.
C. R. Peddle, *P. Agt.*....St. Louis, Mo.
Geo. H. Prescott, *S. M. P. & M.* Terre Haute, Ind.
E. D. Carter, *M. C. B.*....Terre Haute, Ind.
Clinton Idler, *M. M.*....Indianapolis, Ind.
Chas. Butler, *M. M.*....Effingham, Ill.
A. W. Quakenbush, *M. M.*....Logansport, Ind.
Pennsylvania R. R. Co.'s Roads. (7 Gen. Divs.)
4-9 g. 3,158 m. 1,459 loco. 66,816 cars.
Chas. E. Pugh, *Gen Man.*....Philadelphia, Pa.
Enoch Lewis, *Pur. Agt.*....Philadelphia, Pa.
John Reilly, *Supt. Trans.*....Philadelphia, Pa.
T. N. Ely, *Gen. S. M. P.*....Altoona, Pa.
(1) Pennsylvania R. R. Divs.
4-9 g. 1,139 m. 709 lo. 48,087 cars.
S. M. Prevost, *Gen. Supt.*....Altoona, Pa.
Frank L. Sheppard, *Supt. M. P.*....Altoona, Pa.
G. W. Strattan, *M. M.*....Altoona, Pa.
Jno. P. Levan, *Gen. Fore.*....Altoona, Pa.
Phila. Div.: Tho. Gucker, *Supt.* Philadelphia, Pa.
H. D. Garrett, *M. M.*....W. Philadelphia, Pa.
I. W. Van Houten, *Gen. For.*....W. Phila., Pa.
Mid. Div.: O. E. McClellan, *Supt.* Harrisburg, Pa.
E. L. Caum, *M. M.*....Harrisburg, Pa.
Samuel W. Myers, *Gen. For.* Harrisburg, Pa.
Altoona Div.: Jas. Reed, *Supt.*....Altoona, Pa.
Pitts. Div.: Robert Pitcairn, *Supt.*....Pittsburg, Pa.
D. O. Shaver, *M. M.*....Pittsburg, Pa.
J. G. Stewart, *Gen. For.*....Pittsburg, Pa.
W. Pa. Div.: A. P. Kirtland, *Supt.* Blairsville, Pa.
Wm. B. Norris, *M. M.*....Blairsville, Pa.
M. H. Fails, *Gen. For.*....Blairsville, Pa.
Fred. Div.: J. B. Hutchinson, *Supt.*....York, Pa.
Tyrone Div.: S. S. Blair, *Supt.*....Tyrone, Pa.
Lew. Div.: Wm. M. Phillips, *Supt.* Lewistown, Pa.
Bed. Div.: R. L. Holliday, *Supt.*....Bedford, Pa.
Monong. Div.: David M. Watt, *Supt.* Pittsburg, Pa.
Wm. Lininger, *M. M.*....Pittsburg, Pa.
(2) United R. Rs. of N. J. Divs. 575 m. 305 lo. 4,962 c.
F. Wolcott Jackson, *Gen. St.* Jersey City, N. J.
H. S. Hayward, *Supt. M. P.*....Jersey City, N. J.
David H. Baker, *Gen. For.*....Jersey City, N. J.
N. Y. Div.: Robt. E. Pettit, *Supt.* Jersey City, N. J.
L. A. Bosdevex, *M. M.*....Jersey City, N. J.
E. F. Bosdevex, *Gen. For.* Jersey City, N. J.
Belv. Div.: J. A. Anderson, *Supt.* Lambertv., N. J.
R. McDowell, *M. M.*....Lambertville, N. J.
Amboy Div.: I. S. Buckalew, *Supt.* Camden, N. J.
Thos. Kerr, *M. M.*....So. Amboy, N. J.
P. S. Bovart, *Gen. For.*....So. Amboy, N. J.
Camden & At. Rd.: W. N. Bannard, *Supt.*, and
Rufus Hill, *M. M.*....Camden, N. J.
Samuel Wills, *M. C. B.*....Camden, N. J.
(3) West Jersey R. R. 4-9 g. 186 m. 25 lo. 524 cars.
Joseph Crawford, *Gen. Supt.*....Camden, N. J.
W. McAllister, *M. M.*....Camden, N. J.
C. C. Williams, *Gen. For.*....Camden, N. J.
(4) Phila., Wilm. & Balt. R. R. 386 m. 121 lo. 1,777 c.
H. F. Kenney, *Gen. Supt.*....Philadelphia, Pa.
S. A. Hodgman, *M. M.*....Wilmington, Del.
W. H. Lungren, *Gen. For.*....Wilmington, Del.
Cen. Div.: L. K. Lodge, *Supt.*....Media, Pa.
S. D. Danfield, *M. M. & C. B.*....Chester, Pa.
Del. Div.: I. N. Mills, *Supt.*....Wilmington, Del.
J. A. Baynard, *M. M.*....Oxford, Md.
C. E. Mason, *M. C. B.*....Oxford, Md.
Md. Div.: H. H. Carter, *Supt.* Wilmington, Del.
(5) Phila. & Erie R. R. Divs.: 418 m. 117 lo. 3,481 c.
R. Neilson, *Gen. Supt.*....Williamsport, Pa.
A. O. Dayton, *Supt. Mo. Po.* Williamsport, Pa.
E'n. Div.: E. B. Westfall, *Supt.* Williamsport, Pa.
Sun. H. & W. Div.: A. Walter, *Supt.*; and
H. K. Stout, *M. M.*....Sunbury, Pa.
Mid. Div.: Tho. A. Roberts, *Supt.*....Renova, Pa.
Wm. L. Holman, *M. M.*....Renova, Pa.
West'n Div.: J. W. Reynolds, *Supt.*....Erie, Pa.
W. T. Smith, *M. M.*....Erie, Pa.
(6) Northern Central Ry. 4-9 g. 326 m. 152 lo. 7,027 c.
Robert Neilson, *Gen. Supt.*....Williamsport, Pa.
A. O. Dayton, *Supt. M. P.*....Williamsport, Pa.
A. W. Sumner, *Pur. Agt.*....Baltimore, Md.
Susq. Div.: E. B. Westfall, *Supt.* Williamsport, Pa.
Sham. Div.: A. Walter, *Supt.*....Sunbury, Pa.
Elm. & Can. Divs.: S. Meade, *Supt.*....Elmira, N. Y.
Jas. Strode, *M. M.*....Elmira, N. Y.
J. C. Dyott, *Gen. For.*....Elmira, N. Y.
Baltimore Div.: H. W. Knapp, *Supt.* Baltimore, Md.
(7) Balt. & Pot. & Alex. & Fred. 128 m. 30 lo. 358 c.
H. F. Kenny, *Gen. Supt.*....Baltimore, Md.
A. W. Sumner, *Pur. Agt.*....Baltimore, Md.
J. M. Wallis, *Supt. Mo. Po.*....Baltimore, Md.
J. M. Coale, *M. M.*....Baltimore, Md.
G. W. Demarest, *Gen. For.*....Baltimore, Md.
Penn. Coal Co.'s R. R. 4-3 g. 67 m. 23 eng. 3,271 c.
J. B. Smith, *Gen. Supt.*....Dunmore, Pa.
And. Crane, *M. M.*....Dunmore, Pa.
Geo. W. Simpson, *M. C. B.*....Dunmore, Pa.
Pennsylvania, Slatington & New England R. R.
In progress. 4-8½ g. 18 m. 1 lo. 20 cars.
C. H. Stanton, *Supt.*....New York, N. Y.
Pennsylvania & Erie R. R.—Early Branch.
C. R. Early, *Gen. Supt.*....Ridgeway, Pa.
Pensacola & Atlantic R. R. 5 g. 161 m. 9 lo. 67 cars.
W. D. Chipley, *Gen. Supt.*....Pensacola, Fla.
M. J. Carroll, *M. M.*....Pensacola, Fla.
Pensacola & Perdido R. R. 5 g. 10 m. 5 lo. 93 cars.
R. F. Simmons, *Pr. & Supt.*....Pensacola, Fla.
H. W. Simmons, *Pur. Agt.*....Pensacola, Fla.
J. C. Schulte, *M. M.*....Pensacola, Fla.
People's Ry. 4-8½ g. 15 m. 2 lo. 14 cars.
W. D. Pollard, *Supt.*....Pottsville, Pa.
Peoria, Decatur & Evansville Ry.
4-8½ g. 254 m. 30 lo. 1,487 cars.
G. L. Bradbury, *Gen. Man.*....Peoria, Ill.
G. R. Cobleigh, *Supt. & Pur. Agt.*...Peoria, Ill.
P. Reilly, *M. M.*....Mattoon, Ill.
Peoria & Farmington R. R. (*See Cen. Ia.*)
Peoria & Pekin Union Ry. 4-8½ g. 20 m. 12 lo. 106 c.
Thos. B. Burnett, *Gen. Supt. & P. A.* Peoria, Ill.
R. F. Hurd, *M. M. & C. B.*....Peoria, Ill.
Perkiomen R. R. 4-8½ gauge 39 miles.
D. B. Clack, *Supt.*....Perkiomen Junction, Pa.
H. Boyd, *Pur. Agt.*....Norristown, Pa.
Petersburg R. R. 4-8½ g. 64 m. 10 lo. 133 cars.
R. M. Sully, *Gen. Supt.*....Petersburg, Va.
L. E. Clark, *Pur. Agt.*....Petersburg, Va.
R. B. Andrews, *M. M.*....Petersburg, Va.
J. W. Fleming, *M. C. B.*....Petersburg, Va.
Phila., Wilmington & Balt. R. R. (*See Penna. R. R.*)
Peterborough & Hillsborough. (*See Northern, N. H.*)
Philadelphia, Newtown & New York R. R.
4-8½ g. 23 m.
W. M. Geary, *Supt.*....Norristown, Pa.
Phila. & Atlantic City Ry. 3-6 g. 55 m. 11 lo. 134 cars.
F. S. Urie, *Supt. & Pur. Agt.* Philadelphia, Pa.
John T. Kellner, *M. M.*....Camden, N. J.
E. Lippincott, *M. C. B.*....Camden, N. J.
Philadelphia & Erie R. R. (*See Penna. R. R.; (5) Div.*)
Philadelphia & Reading R. R. (and Branches.)
4-8½ g. 1,414 m. 855 lo. 55,619 cars.
John E. Wootten, *Gen. Man.*..Philadelphia, Pa.
(1) Phila. & Read. Div.: 846 m. 539 lo. 24,606 c.
W. S. Wilson, *Pur. Agt.*....Philadelphia, Pa.
Geo. Eltz, *Supt. Trans.*....Reading, Pa.
L. B. Paxson, *Eng. of Mach.*....Reading, Pa.
No. Pa. & Bound Brook and Bethlehem Br.:
I. A. Sweigard, *Supt.*....Philadelphia, Pa.
Mahoney & Shamokin and other Brs.:
J. H. Olhausen, *Supt.*....Mahoney Plane, Pa.
Catawissa & Williamsport Br.:
D. C. Reinhart, *Supt.*....Williamsport, Pa.
Mine Hill & Schuylkill Haven Br.:
A. A. Hesser, *Supt.*....Cressona, Pa.
Schuylkill & Susquehanna and Leb. & Tre. Brs.:
H. H. Tracy, *Supt.*....Pine Grove, Pa.
Reading & Columbia Br.:
A. M. Wilson, *Supt.*....Columbia, Pa.
(2) N. J. Central Divs.: 573 m. 316 lo. 31,013 cars.
W. W. Stearns, *Gen. Supt.*....Elizabeth, N. J.
B. W. Burnett, *Pur. Agt.*....New York, N. Y.
Cen. Div.: W. Woodcock, *M. M.* Elizabethport, N. J.
Geo. Hackett, *M. C. B.*....Elizabethport, N. J.
C. G. Williams, *M. M.*....Jersey City, N. J.
John Alpaugh, *M. M.*....Phillipsburg, N. J.
L. Br. Div.: H. H. Nieman, *Supt.* Long Branch, N. J.
N. J. So. Div.: R. Blodgett, *Supt.*....Manchester, N. J.
Wm. Montgomery, *M. M.*....Manchester, N. J.
Chas. N. Sawyer, *M. C. B.*....Manchester, N. J.
Lehigh & Susquehanna Div.:
W. S. Polhemus, *Supt.*....Mauch Chunk, Pa.
L. C. Brastow, *Supt. Mach.*....Ashley, Pa.
Pittsburg, Bradford & Buffalo Ry. (*See Pitts. & West.*)
Pittsburg, Chartiers & Youghiogheny R. R.
4-8½ g. 19 m.
Geo. S. Griscom, *Gen. Man.*....Pittsburg, Pa.
Pittsburg, Cincinnati & St. Louis Ry. (*See Penna. Co.*)
Pittsburg, Cleveland & Toledo R. R. In progress.
4-8½ g. 43 m. 4 lo. 150 cars.
C. H. Andrews, *Pres.*....Youngstown, O.
Pittsburg, Ft. Wayne & Chicago Ry. (*See Penna. Co.*)
Pittsburg Southern Ry. (*See Balt. & O.*)
Pitts. & Castle Shannon R. R. 3-4 g. 9 m. 5 lo. 428 c.
James M. Bailey, *Gen. Supt.*....Pittsburg, Pa.
Holmes Ward, *M. M.*....Castle Shannon, Pa.
Wm. E. Long, *M. C. B.*....Pittsburg, Pa.
Pitts. & Lake Erie R. R. 4-8½ g. 70 m. 31 lo. 1,820 c.
W. C. Quincy, *Gen. Man.*....Pittsburg, Pa.
F. N. Jones, *Mast. Trans.*....Pittsburg, Pa.
S. W. Haines, *M. M.*....Pittsburg, Pa.
Pitts. & Western R. R. 3 & 4-8½ g. 110 m. 18 lo. 365 c.
Pitts., Bradford & Buff. Ry. 3 g. 93 m. 8 lo. 163 c.
W. C. Mobley, *Gen. Supt.*....Allegheny, Pa.
C. P. Ford, *Pur. Agt.*....Allegheny, Pa.
Chas. Kennedy, *Asst. Supt. & M. M.* do.
Pontiac, Oxford & Pt. Austin R. R. 100 m. In progress.
Geo. W. Debevoise, *Gen. Supt.*....Oxford, Mich.
Port Huron & No.-Western Ry. 3 g. 218 m. 14 lo. 288 c.
H. McMorran, *G. Man. & P. A.* Port Huron, Mich.
J. R. Wadsworth, *Supt.*....Port Huron, Mich.
Chas. Duffenbach, *M. M.*....Port Huron, Mich.
Benj. Hillier, *M. C. B.*....Port Huron, Mich.
Port Jervis & Monticello R. R. 6 g. 24 m. 3 lo. 13 c.
M. V. Heller, *Gen. Man.*....Port Jervis, N. Y.
Port Royal & Augusta Ry. 5 g. 180 m. 16 lo. 310c.
J. N. Bass, *Supt.*....Augusta, Ga.
John McCann, *M. M.*....Augusta, Ga.
J. H. Milton, *M. C. B.*....Augusta, Ga.
Portland & Ogdensburg 4-8½ g. 110 m. 11 lo. 311 c.
J. Hamilton, *Gen. Supt. & P. A.*....Portland, Me.
M. M.....Portland, Me.
W. G. Brewer, *M. C. B.*....Portland, Me.
Portland & Rochester R. R. 4-8½ g. 53 m. 7 lo. 230 c.
J. W. Peters, *Supt. & Pur. Agt.*....Portland, Me.
E. H. C. Tompson, *For. of Mach.*....Portland, Me.
David Dow, *For. of Car Repairs* Portland, Me.
Potomac, Fred'g & Pied. R. R. 3 g. 38 m. 2 lo. 38 c.
Will M. Grafton, *Supt.*....Fredericksburg, Va.
W. J. Sweigard, *M. M.*....Fredericksburg, Va.
Pough., Hart. & Bos. R. R. 4-8½ g. 45 m. 4 lo. 65 c.
J. A. Perkins, *Supt.*....Poughkeepsie, N. Y.
John I. Donaldson, *M. M.* Poughkeepsie, N. Y.
Pratt Coal & Coke Company's R. R. 5 g. 9 m. 5 lo. 100 c.
W. L. Gude, *Gen. Man.*....Pratt Mines, Ala.
Prescott & Thirty-Fifth Parallel R. R.
4-8½ g. 77 miles in progress.
Samuel A. Henszey, *Gen. Man.*....Prescott, Ariz.
Prince Edward Island Ry. 3-6 g. 199 m. 18 lo. 280 c.
Jas. Coleman, *Supt. & Pur. Agt.*;
Jos. Unsworth, *M. Supt. & Storekeeper*; and
D. M. Fraser, *M. C. B.*....Charlottetown, P. E. I.
Profile & Franconia Notch R. R. 3 g. 15 m. 3 lo. 18 c.
Emmons Raymond, *Pur. Agt.*....Boston, Mass.
C. H. Greenleaf, *Supt.*....Profile House, N. H.
Prospect Park & Coney Island R. R.
R. Schermerhorn, *Supt.*....Brooklyn, N. Y.
Martin Painter, *M. M.*....Brooklyn, N. Y.
Prov., Warren & Bristol R. R. 4-8½ g. 19 m. 5 lo. 57 c.
Waterman Stone, *Supt.*....Providence, R. I.
Rufus Smith, *M. M. & C. B.*....Bristol, R. I.
Prov. & Springfield R. R. 4-8½ g. 23 m. 4 lo. 92 c.
Wm. Tinkham, *Gen. Man.*....Providence, R. I.
G. T. Richardson, *M. M.*....Providence, R. I.
Prov. & Worcester. 4-8½ g. 66 m. 34 lo. 1,155 c.
W. E. Chamberlain, *Supt.*....Providence, R. I.
A. Griggs, *Supt. L. & C. D.*....Providence, R. I.
Pullman's Palace Car Co. 564 passenger cars.
A. B. Pullman, *2d V.-Pr. & G. M.*...Chicago, Ill.
Geo. F. Brown, *Gen. Supt.*....Chicago, Ill.
Wm. A. Angell, *Pur. Agt.*....Chicago, Ill.
S. W. Bretzfield, *Asst. Pur. Agt.* New York, N. Y.
A. Rapp, *Man.* (Chicago Works)...Chicago, Ill.
H. L. Spaulding, *Man.* (Det Shops)..Detroit, Mich.
E. A. Benson, *Supt. Shops*....St. Louis, Mo.

Q

Quebec Central Ry. 4-8½ g. 147 m. 10 lo. 267 cars.
A. Steele, *Supt.*....Sherbrooke, Que.
R. D. Morkill, *Pur. Agt.*....Sherbrooke, P. Q.
Jas. Seivright, *M. M.*....Sherbrooke, P. Q.
Quebec, Montreal, Ottawa & Occidental Ry.
4-8½ g. 354 m. 36 lo. 993 cars.
L. A. Senecal, *Gen. Supt.*....Quebec, Que.
Quebec & Lake St. John Ry. 4-8½ g. 36 m. 3 lo. 55 c.
J. G. Scott, *Manager*....Quebec, Can.
Frank Fournier, *Supt.*....St. Raymond, P. Q.
John T. Eames, *M. M.*....St. Raymond, P. Q.
Queen Anne's & Kent and Townsend Branch R. R.
(*See Penna.; (4) Div.*)

R

Raleigh & Augusta Air-Line: Carolina Central.
Raleigh & Gaston R. Rs. 4-8½ g. 436 m. 48 lo. 994 c
John C. Winder, *Gen. Man. & P. A.* Raleigh, N. C.
Raleigh Rds. 4-8½ g. 194 m. 22 lo. 563 cars.
B. H. Harding, *Supt. of Mach.* Raleigh, N. C.
Carolina Cen. R. R. 4-8½ g. 242 m. 26 lo. 431 c.
L. C. Jones, *Gen. Supt.*....Wilmington, N. C.
James Maglenn, *M. of Mach.* Laurinburg, N. C.
S. R. Ethridge, *M. C. B.*....Laurinburg, N. C.
Rensselaer & Saratoga R. R. (*See Del. & Hud. Can. Co.*)
Rhinebeck & Connecticut. (*See Hart. & Ct. Wn.*)
Richmond, Fredericksburg & Potomac R. R.
4-8½ g. 83 m. 15 lo. 146 cars.
E. T. D. Myers, *Gen. Supt.*....Richmond, Va.
T. L. Courtney, *Asst. Supt.*....Richmond, Va.
H. Kuhn, *M. M.*....Richmond, Va.
W. H. Trainham, *M. C. B.*....Richmond, Va.
Richmond & Alleghany R. R. 4-9 g. 261 m. 21 lo. 837c.
Decatur Axtell, *V. P. & Gen. Man.* Richmond, Va.
M. Sweeney, *Pur. Agt.*....Richmond, Va.
Geo. D. Harris, *M. M. & C. B.*....Richmond, Va.
Richmond & Danville R. R. Co.'s Roads.
1,736 miles 218 loco. 3,833 cars.
T. M. R. Talcott, *Gen. Man.*....Richmond, Va.
Peyton Randolph, *As. G. Man.*..Richmond, Va.
J. P. Minetree, *Pur. Agt.*....Richmond, Va.
R. D. Wade, *Supt. Mo. Po.*....Richmond, Va.
(1) Rich. & Dan. R. R. 5 g. 847 m. 131 lo. 2,687 cars.
Rich. & Dan. Div.: 5 g. 320 m. 80 lo. 1,797 c
Wm. H. Green, *Supt.*....Richmond, Va.
T. W. Gentry, *M. M.*....Richmond, Va.
J. B. Vaughan, *For. Car Sh.*....Richmond, Va.
North Carolina Div. 5 g. 223 m. 22 lo. 268 cars.
A. B. Andrews, *Supt.*....Raleigh, N. C.
W. H. Turrentine, *M. M.* Comp'y's Shops, N. C.
J. C. Holt, *For. Car Sh.* Comp'y's Shop, N. C.
Atlanta & Char. Air Line. 5 g. 266 m. 31 lo. 415 c.
Narrow-Gauge Branches. 3 g. 80 m. 5 lo. 41 c.
I. Y. Sage, *Supt.*....Atlanta, Ga.
W. A. Walden, *M. M.*....Atlanta, Ga.
Z. T. Smith, *For. Car Sh.*....Atlanta, Ga.
(2) Charlotte, Col. & Aug. R. R. 5 g. 239 m. 22 lo. 287 c.
G. R. Talcott, *Supt.*....Columbia, S. C.
J. H. Green, *M. M.* (2 roads)...Columbia, S. C.
J. H. Perkins, *For. Car Sh.*....Columbia, S. C.
(3) Columbia & Greenville R. R. 5 g. 297 m. 22 l. 224 c.
G. S. Talcott, *Supt.*....Columbia, S. C.
J. O. Meredith, *For. K. & C. Rep.*.... do.
(4) Virginia Midland Ry. 4-8½ g. 353 m. 41 lo. 631 c.
W. M. S. Dunn, *Eng. & Supt.* Alexandria, Va.
J. E. Wadley, *M. of M.*....Alexandria, Va.
J. T. Nalls, *M. C. B.*....Alexandria, Va.
Richmond & Petersburg R. R. 4-8½ g. 25 m. 8 lo. 132 c.
J. R. Kenly, *Supt.*....Richmond, Va.
John O'Brien, *M. M.*....Richmond, Va.
Rio Grande R. R. 3-6 g. 22 m. 3 lo. 40 cars.
M. J. Gomila, *Rec. & Gen. Man.* Brownsville, Tex.
G. W. Rendall, *M. M.*....Brownsville, Tex.
M. Markwood, *M. C. B.*....Brownsville, Tex.
Rio Grande & Pecos Ry. 4-8½ g. 27 m. In progress.
W. W. Hungerford, *Man.*....Laredo, Tex.
Rochester & Lake Ontario Ry. 4-8½ g. 6 m. 2 lo. 10 c.
N. B. Ellison, *Man.*....Rochester, N. Y.
Rochester & Pittsb'g. R. R. 4-8½ g. 134 m. 21 lo. 1,251 c.
Geo. E. Merchant, *Gen. Man.*...Rochester, N. Y.
J. P. Hovey, *M. M.*....Rochester, N. Y.
Rock Island & Mercer County R. R., and
Rock I'd & Peoria Ry. 4-8½ g. 113 m. 13 lo. 357 c.
R. R. Cable, *V.-P. & Gen. Supt.*..Rock Island, Ill.
R. I. & P. Ry.: H. B. Sudlow, *Supt. & P. A.* do.
Joseph Elder, *M. M.*....Peoria, Ill.
R. I. & M. C. Rd.: B. T. Cable, *Supt.* R'k Island, Ill.
J. H. Parks, *M. M.*....Rock Island, Ill.
Rogersville & Jefferson R. R. 5 g. 16 m. 1 lo. 6 cars.
C. M. Leuty, *Supt.*....Rogersville, Tenn.
Rome (Ga.) R. R. 5 g. 20 m. 2 lo. 17 cars.
Eben Hillyer, *Supt.*....Rome, Ga.
O. W. Harbin, *M. M. & C. B.*....Rome, Ga.
Rome, Watertown & Ogdensburg R. R.
4-8½ g. 417 m. 54 lo. 1,400 cars.
H. M. Britton, *Gen. Man. & P. A.* Oswego, N. Y.
Geo. H. Haselton, *M. M. & C. B.*..Oswego, N. Y.
E'n Div.: J. D. Remington, *Supt.* Watertown, N. Y.
W'n Div.: W. H. Chauncey, *Supt.*..Oswego, N. Y.
Roodhouse & Scottsville Ry. In progress.
Geo. P. Merrill, *Gen. Man.*....Chicago, Ill.
Ruby Hill R. R. (*See Eureka & Pal.*)
Rumford Falls & Buckfield R. R. 4-8½ g. 29 m. 21. 62 c.
L. L. Lincoln, *Supt.*....Canton, Me.
O. Spaulding, *Pur. Agt.*....Buckfield, Me.
E. R. Oldham, *M. M.*....Buckfield, Me.

S

Sabine & East Texas Ry. (*See Cen. Pac.*)
Sacramento & Placerville R. R. (*See Cen. Pac.*)
Saginaw Bay & Northw'n R. R. 4-8½ g. 31 m. 6 lo. 136 c.
J. Jackson, *Gen. Man.*....Pinconning, Mich.
F. T. Lillote, *Act. Pur. Agt.*....Pinconning, Mich.
Edward Keeler, *M. M.*....Pinconning, Mich.
Saginaw, Tuscola & Huron R. R.
3 g. 37 m. 3 lo. 83 cars.
C. S. McMillan, *Gen. Supt.*..E. Saginaw, Mich.
Saginaw Valley & St. Louis R. R. 4-8½ g. 39 m. 4 l. 64 c.
N. W. Merrill, *Supt.*....Saginaw, Mich.
Allan Bourn, *Pur. Agt.*....Detroit, Mich.
Geo. C. Watrous, *M. M.*....Iona, Mich.
Salisbury R. R. 4-8½ g. 11 m. 1 lo. 1 car.
R. J. Batzer, *Supt.*....Pittsburgh, Pa.
Salt Lake & Western R. R. (*See Un. Pac.; (6) Div.*)
San Francisco & No. Pac. 4-8½ g. 139 m. 11 lo. 245 c.
Arthur Hughes, *Gen. Man.*..San Francisco, Cal.
H. C. Whiting, *Supt.*....Petaluma, Cal.
Ed. Reynolds, *Gen. M. M.*....Donahue, Cal.
John Martin, *M. C. B.*....Donahue, Cal.
Sanborn, Cooperstown & Turtle M. R. R. In progress.
C. A. Roberts, *Gen. Man.*....Sanborn, Dak.
Sandy River R. R. 2 g. 18 m. 2 lo. 23 cars.
D. L. Dennison, *Supt.*....Phillips, Me.
M. Saunders, *M. M. & C. B.*....Phillips, Me.
Sandusky, Mansfield & Newark R. R. (*See B. & O.*)
Sanford & Indian River R. R. (*See So. Flor.*)
San Luis Obispo & Santa Maria R. R.
3 g. 20 m. 2 lo. 30 cars.
Charles Goodall, *Man.*....San Francisco, Cal.
San Pete Valley R. R. 3 g. 33 m. 2 lo. 57 cars.
F. C. Hand, *Supt.*....Wales, U. T.
J. E. Bamberger, *Pur. Agt.*....Salt Lake, U. T.
B. Bates, *M. M.*....Wales, U. T.
Santa Cruz R. R. (*See So. Pac.; Nor'n Div.*)
Saratoga, Mt. McGregor & Lake George R. R.
3 g. 11 m. 3 lo. 12 cars.
John McGee, *Supt.*....Saratoga Springs, N. Y.
Savannah, Florida & W'n Ry. 5 g. 425 m. 50 lo. 736 c.
H. S. Haines, *Gen. Man.*....Savannah, Ga.
R. G. Fleming, *Supt.*....Savannah, Ga.
F. S. Pendergast, *Ch. Eng.*....Savannah, Ga.
A. A. Aveilhé, *Pur. Agt.*....Savannah, Ga.
G. M. D. Riley, *M. of Mach.*....Savannah, Ga.
Jos. W. Rowell, *For. Car Dept.* Savannah, Ga.
Sav., Griffin & No. Ala. R. R. *Op. by Central* (*Ga.*).
Savannah, Skiddaway & Seaboard R. R.
5 g. 12 m. 3 lo. 12 cars.
Edward J. Thomas, *Supt.*....Savannah, Ga.
R. F. Brown, *M. M.*....Savannah, Ga.
G. W. Mattan, *M. C. B.*....Savannah, Ga.
Schuylkill & Lehigh R. R. (*See Phil. & Read.*)
Schoharie Valley R. R. (*See Middlebury & Sch.*)
Scioto Valley R. R. 4-8¾ g. 132 m. 17 lo. 564 cars.
Geo. Skinner, *Supt.*....Columbus, O.
R. Bromley, *M. M. & P. A.*....Portsmouth, O.
Seaboard & Roanoke R. R. 4-8½ g. 80 m. 21 lo. 384 c.
E. G. Ghio, *Mast. of Trans.*....Portsmouth, Va.
J. A. Walton, *Pur. Agt.*....Portsmouth, Va.
M. M. Pendleton, *S. M. P. & M.* Portsmouth, Va.
Sedalia, Warsaw & Southern Ry. (*See Mo. Pac.*)
Sharpsville R. R. 4-8½ g. 23 m. 3 lo. 13 cars.
Walter Pierce, *Gen. Man.*....Sharpsville, Pa.
Shenandoah Valley R. R. 4-9 g. 249 m. 32 lo. 849 c.
Norfolk & Western R. R. 5 g. 486 m. 82 lo. 1,779 c.
J. H. Sands, *Supt.*....Roanoke, Va.
W. C. De Armond, *Pur. Agt.*....Philadelphia, Pa.
Chas. Blackwell, *Supt. of M. P.*....Roanoke, Va.
Sh. Val. Rd.: D. W. Flickwir, *Supt.*, Roanoke, Va.
W. Welch, *M. M.*....Roanoke, Va.
N. & W.; W. Div.: Frank Huger, *Supt.*; and
F. Sterk, *M. M.*....Lynchburg, Va.
N. & W.; E. Div.: N. M. Osborne, *Supt.*; and
J. T. Robinett, *M. M. & C. B.*....Petersburg, Va.
Shenango & Allegheny R. R. 4-9½ g. 57 m. 8 lo. 248 c.
J. T. Blair, *G. Man. & Pur. Agt.* Greenville, Pa.
Edw. Richardson, *M. M. & C. B.* Greenville, Pa.
Shepaug R. R. 4-8½ g. 38 m. 3 lo. 28 cars.
Edwin McNeill, *Supt.*....Litchfield, Ct.
C. M. Allen, *M. M.*....Litchfield, Ct.
Ship Is., Ripley & Ky. R. R. 3 g. 25 m. 2 lo. 23 cars.
C. L. Harris, *Supt. & Pur. Agt.*....Ripley, Miss.
W. H. Phelps, *M. M.*....Ripley, Miss.
Silver City, Deming & Pacific R. R. 3 g. 47 m. 3 l. 141 c.
John W. Smith, *Gen. Supt.*....Silver City, N. M.
Silver Lake Ry. 4-8½ g. 6 m. 1 lo. 4 cars.
E. G. Matthews, *Supt.*....Perry, N. Y.
Sinaloa & Durango R. R. 4-8½ g. 38 m. 2 lo. 40 cars.
H. M. Fickinger, *Supt.*....Altata, Sinaloa, Mex.
Wm. P. Dutton, *M. M.*....Culiacan, Mex.
Skaneateles R. R. 4-8½ g. 5 m. 2 lo. 5 cars.
J. McNamara, *Supt.*....Skaneateles, N. Y.
Sioux City & Pacific R. R. 4-8½ g. 427 m. 28 lo. 785 c.
P. E. Hall, *Gen. Man. & P. A.* Cedar Rapids, Ia.
C. M. Lawler, *Gen. Supt.*....Missouri Valley, Ia.
J. S. Wattles, *Supt.*....Missouri Valley, Ia.
C. F. McCoy, *Asst. Supt.*....Blair, Neb.
S. A. Teal, *M. M.*....Missouri Valley, Ia.
W. H. Ramseyer, *M. C. B.*....Missouri Valley, Ia.
Smyrna & Delaware Bay R. R. (*See Kent County.*)
Sodus Bay & Southern Ry. 4-8½ g. 34 m. 4 lo. 40 c.
S. B. Stuart, *Supt. & Pur. Agt.* Sodus Point, N. Y.
J. C. Thomas, *M. M.*....Sodus Point, N. Y.
C. H. Hill, *M. C. B.*....Sodus Point, N. Y.
Somerset R. R. 4-8½ g. 25 m. 3 lo. 24 cars.
W. M. Ayer, *Supt. & Pur. Agt.* W. Waterville, Me.
C. Crowell, *M. C. B.*....No. Anson, Me.
Somerset & Cambria R. R. (*See B. & O.*)
Sonora Ry. (*See A., T. & S. Fe.*)
South & North Alabama R. R. (*See Louis. & Nash.*)
South Carolina Ry. 5 g. 246 m. 42 lo. 742 cars.
John B. Peck, *Gen. Man.*....Charleston, S. C.
S. B. Pickens, *Pur. Agt.*....Charleston, S. C.
P. J. Cochrane, *Mast. of Mach.* Charleston, S. C.
Geo. H. Gramling, *M. C. B.*....Charleston, S. C.
South-Eastern Ry. 4-8½ g. 260 m. 26 lo. 826 cars.
T. A. McKinnon, *Gen. Man.*....Montreal, Can.
H. A. Alden, *Supt.*....W. Farnham, P. Q.
A. G. Eastman, *M. M.*....W. Farnham, P. Q.
South Florida R. R. 3 gauge 40 m. 5 lo. 53 cars.
B. R. Swoope, *Supt. & P. A.*....Sanford, Fla.
C. C. Haskell, *Pur. Agt.*....Sanford, Fla.
J. A. Campbell, *M. M.*....Sanford, Fla.
A. D. Stentiford, *M. C. B.*....Sanford, Fla.
South Mountain R. R. 4-8½ g. 18 m. 4 lo. 22 c.
W. H. Woodward, *Supt.* Pine G've Furnace, Pa.
South Pacific Coast R. R. 3 g. 81 m. 14 lo. 500 cars.
Geo. Revett, *Gen. Supt.*....San Francisco, Cal.
G. H. Waggoner, *Pur. Agt.*..San Francisco, Cal.
E. L. Reese, *M. M. & C. B.*....Newark, Cal.
South-Western R. R. (Ga.) (*See Central of Ga.*)
South-Western Ry. (Ky.) 4-8½ g. 4 m. 1 lo. 38 cars.
J. M. Wilson, *Supt.*....Harrodsburg, Ky.
J. Tomlinson, *Pur. Agt.*....Harrodsburg, Ky.
Southern Central R. R. 4-8½ g. 156 m. 21 lo. 467 c.
James G. Knapp, *Supt. & Pur. Agt.* Auburn, N. Y.
Chas. G. Brown, *M. M.*....Auburn, N. Y.
H. Mooney, *M. C. B.*....Auburn, N. Y.
Southern Kansas Ry. (*See At., Top. & Santa Fe.*)
Southern Maryland R. R. 4-8½ g. 20 m. 1 lo. 20 c.
Robert Knight, *Supt.*....Brandywine, Md.
C. R. Joyce, *M. M.*....Brandywine, Md.
Southern Pacific R. R. 4-8½ g. 198 m. 30 lo. 728 c.
Northern Div. (*For other Divs. see Cen. Pac.*)
A. C. Bassett, *Supt.*....San Francisco, Cal.
J. R. Watson, *Pur. Agt.*....Sacramento, Cal.
J. T. Wilson, *M. M.*....San Francisco, Cal.
F. N. Bellisle, *M. C. B.*...San Francisco, Cal.
Southern Pacific R. R. of Arizona. (*See Cen. Pac.*)
Southern Pacific R. R. of New Mexico. (*See Cen. Pac.*)
Spartanburg, Union & Columbia R. R.
(*See Rich. & Dan.; (3) Div.*)
Spring Brook R. R. 4-3 g. 8 m. 1 lo. 18 cars.
Charles Pugh, *Pres.*....Pittston, Pa.
Spring Hill & Parrsboro Ry. (*See Cumberland.*)
Springfield, Effingham & So.-E'n Ry. (*See Ind. & Ill.*)
Springville & Sardinia Ry. 4-8½ g. 12 m. 1 lo. 8 c.
Bertrand Chaffee, *Pres.*....Springville, N. Y.
St. Croix & Penobscot R. R. 4-8½ g. 22 m. 4 lo. 195 c.
S. W. Haycock, *Supt. & Pur. Agt.*..Calais, Me.
G. H. Corsen, *M. M.*....Milltown, Me.
H. C. Tincker, *M. C. B.*....Milltown, Me.
St. John & Maine Ry. (*See New Brunswick.*)
St. John's Ry. 4-8½ g. 14½ m. 2 lo. 24 cars.
R. McLaughlin, *Pr. & Supt.*..Jacksonville, Fla.
Geo. Ferro, *M. of Mach.*....Tocoi, Fla.
St. John's & Lake Eustis Ry. 3 g. 26 m.
W. J. Jarvis, *Supt.*....Ft. Mason, Fla.
St. Johnsb'ry & Lake Champ. 4-8½ g. 120 m. 10 lo. 372 c.
A. B. Jewett, *Supt. & P. A.*..St. Johnsbury, Vt.
Geo. E. Howe, *M. M. & C. B.* St. Johnsbury, Vt.
St. Joseph Valley R. R. 3 g. 15 m. 1 lo. 11 cars.
J. H. Matthews, *Gen. Supt.* Berrien Springs, Mich.
St. Joseph & Des Loge Ry. 3 g. 13 m. 3 lo. 64 cars.
T. T. Onderdonk, *Supt.*....Bonne Terre, Mo.
St. Joseph & Western R. R. (*See Union Pac.; (1) Div.*)
St. Joseph & Des Moines R. R. (*See K. C., St. J. & C. B.*)
St. Lawrence & Ottawa Ry. (*See Can. Pac.*)
St. Louis, Alton & Terre Haute R. R.
Main Line. (*See C., C., C. & I.; Ind. & St. L. Div.*)
St. Louis & Cairo Div.: 4-8½ g. 137 m. 17 lo. 800 c.
G. W. Parker, *Gen. Man.*....St. Louis, Mo.
J. L. Hinckley, *Supt.*....Belleville, Ill.
A. M. De Clerq, *M. M.*....St. Louis, Mo.
St. Louis Bridge Co. and Tunnel R. R.
4-8½ g. 31 m. 18 lo. 11 cars.
Wm. Taussig, *Gen. Man.*....St. Louis, Mo.
A. W. Dickinson, *Supt.*....St. Louis, Mo.
J. E. Williams, Jr., *Pur. Agt.*....St. Louis, Mo.
H. M. Smith, *M. M.*....St. Louis, Mo.
St. Louis Coal R. R. 4-8½ g. 93 m. 10 lo. 217 cars.
Jas. Prentice, *Supt.*....Carbondale, Ill.
Jas. C. Bryden, *Pur. Agt.*....St. Louis, Mo.
St. Louis, Des Moines & Northern Ry. 4-8½ g. 43 m.
C. F. Merk, *Supt.*....Des Moines, Ia.
St. L., Ft. Scott & Wichita R. R. 4-8½ g. 130 m. 6 l. 337 c.
F. Tiernan, *V. P. & Gen. Man.* Fort Scott, Kan.
J. W. Miller, *Gen. Supt.*....Fort Scott, Kan.
A. Popkess, *Pur. Agt.*....Fort Scott, Kan.
Henry Berger, *M. M.*....Ft. Scott, Kan.
A. A. Tiddell, *M. C. B.*....Ft. Scott, Kan.
St. L., Hannibal & Keokuk. 4-8½ g. 85 m. 5 lo. 70 c.
W. W. Walker, *Gen. Supt.*....Hannibal, Mo.
Geo. Douglass, *Pur. Agt.*....Hannibal, Mo.
St. Louis, Iron Mt. & So'n Ry. (*See Mo. Pac.; (4) Div.*)
St. L., Keokuk & No.-W'n. Ry. (*See C., B. & Q.*)
St. L., Salem & Little Rock. 4-9 g. 72 m. 5 lo. 111 c.
H. A. Crawford, *V. Pr. & P. A.*...St. Louis, Mo.
E. B. Sankey, *Supt.*....Salem, Mo.
Thomas Everson, *M. M.*....Steelville, Mo.
J. W. Houston, *M. C. B.*....Steelville, Mo.
St. L., Van. & T. Haute R. R. (*See Penna. Co.; (10) Div.*)
St. Louis & Cairo R. R. 3 g. 152 m. 22 lo. 806 cars.
Chas. Hamilton, *Gen. Supt.*....St. Louis, Mo.
R. M. Pringle, *M. M.*....St. Louis, Mo.
St. L. & San Fran. Ry. 4-8½ g. 854 m. 103 lo. 3,258 c.
C. W. Rogers, *V. P. & Gen. Man.* St. Louis, Mo.
D. H. Nichols, *Mast. Tran.*..No. Springfield, Mo.
A. G. Thompson, *Pur. Agt.*....St. Louis, Mo.
M. Kearney, *M. M. & C. B.*..No. Springfield, Mo.
Mo. & Ark. Div.: W. A. Thoms, *Supt.* do.
Kan. Div.: J. R. Wentworth, *Supt.* Neodesha, Kan.
St. Martin's & Upham Ry. 4-8½ g. 30 m. 2 lo. 8 cars.
A. E. Killam, *Manager*....St. Martin's, N. B.

St. Paul, Minneapolis & Manitoba Ry.
4-8½ g. 1,326 m. 201 lo. 5,068 cars.
A. Manvel, *Gen. Man* ... St. Paul, Minn.
E. B. Wakeman, *Asst. Gen. Supt.* St. Paul, Minn.
J. C. Morrison, *Pur. Agt* ... St. Paul, Minn.
H. Middleton, *M. M. & C. B* ... St. Paul, Minn.
Breck. Div.: W. S. Kemp, *Supt* ... St. Paul, Minn.
F. F. Div.: J. B. Rice, *Supt* ... St. Paul, Minn.
No'n Div.: A. Guthrie, *Supt* ... Crookston, Minn.
St. Paul & Duluth R. R. 4-8½ g. 196 m. 34 lo. 980 c.
H. P. Breed, *Gen. Supt* ... St. Paul, Minn.
J. G. Callahan, *Pur. Agt* ... St. Paul, Minn.
W. McFarland, *M. M* ... St. Paul, Minn.
John Hill, *M. C. B* ... St. Paul, Minn.
State Line & Sullivan R. R. 4-8½ g. 25 m. 3 lo. 263 c.
I. O. Blight, *Supt* ... Towanda, Pa.
Staten Island R. R. 4-8½ g. 13 m. 4 lo. 18 c.
J. W. Wilbur, *Supt* ... New York, N. Y.
Stony Clove & Catskill Mountain R. R.
3 g. 14 m. 2 lo. 21 cars.
Geo. Coykendall, *Gen. Supt* ... Rondout, N. Y.
Stony Creek R. R. 4-8½ g. 11 m.
Geo. B. Boggs, *Supt* ... Norristown, Pa.
Sterling Mountain Ry. 6 g. 8 m. 2 lo. 145 cars.
J. C. Missimer, *Supt* ... Sloatsburg, N. Y.
Suffolk Lumber R. R. 3 g. 15 m. 3 lo. 41 cars.
W. M. Whaley, *Supt* ... Suffolk, Va.
Summit Branch R. R. 4-9 g. 20 m. 7 lo. 10 cars.
Thomas Gucker, *Supt* ... Williamsport, Pa.
Susquehanna & Delaware River R. R. In progress.
D. Y. Kilgore, *Pres* ... Philadelphia, Pa.
Sussex R. R. (*See Del., Lack. & West.*)
Syracuse, Binghamton & N. Y. R. R. (*See D. L. & W.*)
Syr., Chenago & N. Y. R. R. (*See N. Y., W. Sh. & Buf.*)
Syracuse, Geneva & Corning; Corning, Cowanesque & Antrim R. Rs. 4-8½ g. 142 m. 28 lo. 1,044 c.
A. H. Gorton, *Supt* ... Corning, N. Y.
W. E. Gorton, *Asst. Supt* ... Corning, N. Y.
Andrew Beers, *Pur. Agt* ... Corning, N. Y.
O. C. Patchell, *M. M* ... Corning, N. Y.
C. J. Butler, *M. C. B* ... Corning, N. Y.

T

Tawas & Bay County R. R. 3-2 g. 28 m. 2 lo. 100 c.
Henry Clark, *Gen. Supt* ... Tawas City, Mich.
Tennessee Coal R. R. 5 g. 28 m. 8 lo. 204 cars.
A. M. Shook, *Gen. Man* ... Tracy City, Tenn.
W. A. Knight, *M. M* ... Tracy City, Tenn.
Tennessee & Sequatchee Valley R. R.
3 g. 42 m. 1 lo. 24 cars.
Isaac Britton, *Gen. Supt* ... Jewett, Tenn.
P. V. Mooney, *Pur. Agt* ... Spring City, Tenn.
Terre Haute & Indianapolis. (*See Penn. Co.; (10) Div.*)
Terre Haute & Logansport. (*See Penn. Co.; (10) Div.*)
Terre Haute & So.-Eastern Ry. 4-9 g. 44 m. 2 lo. 145 c.
Geo. Atherton, *Supt* ... Terre Haute, Ind.
Texas Central Ry. (*See Hous. & Tex. Cen.*)
Texas-Mexican Ry. (*See Mex. Nat.*)
Texas Trunk R. R. 4-8½ g. 36 m. 2 lo. 8 cars.
W. W. Simonds, *Gen. Supt* ... Dallas, Tex.
Texas Western Ry. 3 g. 52 m. 2 lo. 44 cars.
E. L. Heriot, *Gen. Man* ... Houston, Tex.
J. W. Goodwin, *Supt* ... Houston, Tex.
T. F. Gispin, *M. M* ... Houston, Tex.
Texas & N. O. R. R. (*See Cen. Pac.; G. H. & S. A. Div.*)
Texas & Pacific. (*See Mo. Pac. Ry.; (6) Div.*)
Texas & St. Louis Ry. 3 g. 672 m. 66 lo. 1,382 cars.
J. W. Paramore, *Gen. Man* ... St. Louis, Mo.
F. W. Paramore, *Pur. Agt* ... St. Louis, Mo.
G. W. Prescott, *S. M. P. & M* ... St. Louis, Mo.
A. E. Buchanan, *Supt. Trans* ... Tyler, Tex.
Tex. Div.: A. L. Horner, *Supt* ... Tyler, Tex.
Tionesta Valley R. R. 3 g. 7 m.
George Dickinson, *Gen. Supt* ... Sheffield, Pa.
Tioga and Elmira State Line R. Rs.
4-8½ and 6 g. 67 m. 18 lo. 960 cars.
L. H. Shattuck, *Supt* ... Blossburg, Pa.
J. A. Hardenburg, *Pur. Agt* ... New York, N. Y.
Pere Bonny, *M. M* ... Blossburg, Pa.
D. H. Stratton, *M. C. B* ... Blossburg, Pa.
Toledo, Ann Ar. & Gr. Tr. Ry. 4-8½ g. 63 m. 9 lo. 186 c.
J. M. Ashley, *Gen. Man* ... Ann Arbor, Mich.
H. W. Ashley, *Supt. & Pur. Agt* ... do
C. C. Dodge, *M. M* ... Ann Arbor, Mich.
Toledo, Cin. & St. Louis R. R. 3 g. 798 m. 63 lo. 2,509 c.
E. E. Dwight, *Gen. Man* ... Toledo, O.
F. W. Stewart, *P. Agt* ... Toledo, O.
L. W. James, *Supt. Mach* ... Toledo, O.
C. H. Mead, *Gen. M. C. B* ... Delphos, O.
Toledo Div.: W. H. Vandergrift, *Supt.*: do
J. G. Clifford, *M. M* ... Delphos, O.
Del. & Cin. Divs.: D. T. Bacon, *Supt* ... Cin., O.
T. J. Hamer, *M. M* ... Cincinnati, O.
So. Ea'n Div.: A. W. Salter ... Dayton, O.
L. Parisoe, *M. M* ... Dayton, O.
St. Louis Div.: M. B. Mann ... Charleston, Ill.
Toledo & Indianapolis R. R. 4-8½ g. 43 m. 4 lo. 118 c.
J. B. Clark, *Gen. Supt* ... Toledo, O.
T. Cook, *Supt. of M. P* ... Toledo, O.
Toledo & South Haven R. R. (*See Paw Paw.*)
Tonawanda Val. & Cuba R. R. (*See Brad., B. & K.*)
Toronto, Grey & Bruce Ry. 4-8½ g. 191 m. 28 l. 446 c.
Edmund Wragge, *Gen. Man* ... Toronto, Can.
W. Watson, *Pur. Agt* ... Toronto, Can.
David Preston, *M. M* ... Toronto, Can.
Toronto & Nipissing Ry. (*See Mid. Ry. of Can.*)
Troy & Boston R. R. 4-8½ g. 48 m. 20 lo. 484 cars.
D. Robinson, *Pres. & Pur. Agt* ... Troy, N. Y.
Joseph Crandell, *Supt* ... Troy, N. Y.
Z. B. Davis, *M. M* ... Troy, N. Y.
R. V. Coon, *M. C. B* ... Troy, N. Y.
Troy & Greenfield R. R. 4-8½ g. 44 m.
A. W. Locke, *Man* ... North Adams, Mass.
Tuckerton R. R. 4-8½ g. 31 m. 2 lo. 29 cars.
J. J. Pharo, *Supt. & Pur. Agt.* Tuckerton, N. J.

U

Ulster & Delaware R. R. 4-8½ g. 74 m. 10 lo. 214 cars.
Jas. H. Jones, *Supt* ... Rondout, N. Y.
Joseph Rush, *M. M* ... Rondout, N. Y.
John H. Decker, *M. C. B* ... Rondout, N. Y.
Union Pacific Ry. (7 Gen. Divs.)
3 & 4-8½ g. 4,551 m. 510 lo. 10,550 cars.
S. H. H. Clark, *Gen. Man* ... Omaha, Neb.
Thos. L. Kimball, *Asst. Gen Man.* Omaha, Neb.
M. H. Goble, *Pur. Agt* ... Omaha, Neb.
I. H. Congdon, *S. M. P. & C. D* ... Omaha, Neb
John Wilson, *Asst. do* ... Omaha, Neb.
(1) Neb. Div.: P. J. Nichols, *Gen. Supt* ... Omaha, Neb.
E. Div.: C. B. Havens, *Supt* ... Omaha, N. B.
R. McConnell, *M. M* ... Omaha, Neb.
A. M. Collett, *M. C. B* ... Omaha, Neb.
St. J. & W. Div.: L. D. Tuthill, *Supt.* St. Joseph, Mo.
E. Sleppy, *M. M* ... G. Island, Neb.
Moun. Div.: W. A. Deuel, *Supt* ... Cheyenne, W. T.
J. H. McConnell, *M. M.* ... N. Platte, Neb.
R. McDougall, *M. M* ... Cheyenne, W. T.
(2) Wy. Div.: E. Dickenson, *Gen. Supt* ... Laramie, W. T.
T. E. Lewis, *M. M* ... Laramie, W. T.
T. A. Davis, *M. M* ... Rawlins, W. T.
Wes. Div.: C. E. Wurtelle, *Supt.* Evanston, W. T.
Geo. F. Chapman, *M. M.* ... Evanston, W. T.
(3) Idaho Div.: W. B. Doddridge, *Gen. Supt.* Ogden, U.
Ogden Short Line Div.:
R. Blickensderfer, *Supt* ... Pocatello, Id.
W. H. Lewis, *M. M.* ... Montpelier, Id.
Utah & Northern Div.:
W. P. P. St. Clair, *Supt* ... Eagle Rock, Id.
R. Croft, *M. M* ... Logan, Utah.
F. Reardon, *M. M* ... Eagle Rock, Id.
(4) Col. Cent. Div.: A. A. Egbert, *Gen. Supt.* Denver, Col.
F. Meirtsheimer, *M. M* ... Denver, Col.
C. C. Div.: P. Touhy, *Supt* ... Denver, Col.
So. Park Div.: G. W. Evans, *A. Supt* ... Como, Col.
(5) Kan. Div.: S. T. Smith, *G. Supt* ... Kansas City, Mo.
K. Val. Div.: J. O. Brinkerhoff, *Supt.* Kan. C'y, Mo.
Jas. Mackenzie, *M. M.* ... Armstrong, Kan.
Kansas Central Div.:
W. T. Kelley, *Supt* ... Leavenworth, Kan.
Smoky Hill Div.:
O. H. Dorance, *Supt* ... Wallace, Kan.
J. B. Dailey, *M. M* ... Ellis, Kan.
(6) Salt Lake & Western Div.:
W. W. Ritter, *Supt* ... Salt Lake City, Utah.
(7) Nevada Central Ry. 3 g. 93 m. 4 lo. 78 cars.
F. W. Dunn, *Gen. Supt. & P. A.* Battle Mt., Nev.
Z. T. Sprigg, *M. M* ... Battle Mountain, Nev.
United States Rolling Stock Co. 23 lo. 4,834 cars.
A. Hegewisch, *Pres* ... New York, N. Y.

C. F. Jauriet, *Gen. M. M* ... Chicago, Ill.
W. H. Chaddock, *Pur. Agt* ... Chicago, Ill.
Upson County R. R. (*See Central of Ga.*)
Utah Central Ry. 4-8½ g. 280 m. 21 lo. 358 cars.
John Sharp, *Gen. Supt* ... Salt Lake City, Utah.
S. H. Hill, *Pur. Agt* ... Salt Lake City, Utah.
W. B. Armstrong, *M. M.* ... Salt Lake City, Utah.
Peter Reid, *M. C. B* ... Salt Lake City, Utah
Utah & Nevada Ry. 3 g. 37 m. 3 lo. 33 cars.
W. W. Ritter, *Gen. Man* ... Salt Lake City, Utah.
Robert Anderson, *M. M.* ... Salt Lake City, Utah.
Utah & Northern Ry. (*See Union Pac.; (3) Div.*)
Utah & Pleasant Valley Ry. (*See Den. & Rio. Gr.*)
Utica, Ithaca & Elmira Ry. 4-8½ g. 120 m. 11 lo. 152 c.
C. R. Fitch, *Supt* ... Elmira, N. Y.
C. J. Howe, *M. M. & M. C. B* ... Breesport, N. Y.
Utica, & Black Riv. R. R. 4-8½ g. 180 m. 22 lo. 452 c.
J. F. Maynard, *Gen. Supt. & P. A.* ... Utica, N. Y.
John Bailey, *M. M* ... Utica, N. Y.
David James, *M. C. B* ... Utica. N. Y.

V

Vaca Vall. & Clear Lake R. R. 4-8½ g. 30 m. 2 lo. 19 c.,
G. B. Stevenson, *Gen. Supt* ... Vacaville, Cal.
Valley Ry. (Ohio) 4-8¾ g. 85 m. 15 lo. 581 cars.
J. E. Turk, *Supt. & P. Agt* ... Cleveland, O.
Chas. Blanchard, *M. C. B* ... Cleveland, O.
Valley R. R. Va. 4-8½ g. 26 m.
S. Spencer, *Pres* ... Baltimore, Md.
Vermont Valley R. R. (*See Conn. River.*)
Vicksburg & Brunswick R. R. (*See Cen. of Ga.*)
Vicksburg & Meridian R. R. (*See Cin., N. O. & Tex. Pac.*)
Vicks. Shreveport & Pac. R. R. (*See C., N. O. & T. P.*)
Victoria Ry. (*See Midland Ry. of Can.*)
Virginia Midland Ry. (*See Rich. & Dan.; (4) Div.*)
Virginia & Truckee R. R. 4-8½ g. 54 m. 17 lo. 375 c.
Carson & Colorado R. R. 3 g. 234 m. 6 lo. 134 c.
H. M. Yerington, *Gen. Supt* ... Carson, Nev.
R. J. Laws, *Supt.* (C. & Col.) ... Hawthorne, Nev.
Hume Yerington, *Pur. Agt* ... Carson, Nev.
I. N. Fording, *M. M* ... Carson, Nev.
B. F. Lyon, *M. C. B* ... Carson, Nev.

W

Wabash, Chester & W'n R. R. (*See St. Louis Coal.*)
Wabash, St. Louis & Pacific Ry. (4 Gen. Divs.,
4-8½ g. 3,241 m. 598 lo. 17,230 cars.
John C. Gault, *2d V. P* ... St. Louis, Mo.
Robert Andrews, *Gen. Supt* ... St. Louis, Mo.
R. B. Lyle, *Pur. Agt* ... St. Louis, Mo.
Jacob Johann, *Gen. M. M* ... Springfield, Ill.
U. H. Kohler, *Gen. M. C. B* ... Toledo, O.
(1) Eas'n Div.: G. W. Stevens, *Supt* ... Peru, Ind.
J. B. Barnes, *M. M* ... Fort Wayne, Ind.
John McKenna, *M. M* ... Peru, Ind.
Cairo Div.: D. G. Moore, *Asst. Supt* ... Cairo, Ill
W. S. Morris, *M. M* ... Carmi, Ill
Rant'l Div.: B. F. Mathias, *Asst. Supt.* Rantoul, Ill
J. McCarthy, *M. M* ... Rantoul, Ill.
(2) Middle Div.: H. F. Clark, *Supt* ... Springfield, Ill.
B. B. Rose, *M. C. B* ... Decatur, Ill.
F. L. Tomkins, *Asst. Supt* ... Forest, Ill
F. D. Schermerhorn, *Asst. Supt* ... Quincy, Ill.
(3) Northern Div.: E. N. Armstrong, *Supt.* Peoria, Ill.
R. M. Hemphill, *M. C. B* ... Peoria, Ill.
E. B. Hyde, *Asst. Supt* ... Havana, Ill.
(4) Western Div.: R. S. Miner, *Supt* ... Moberly, Mo.
W. H. Selby, *M. M* ... Moberly, Mo.
C. S. Buck, *M. C. B* ... Moberly, Mo.
E. Dresser, *Asst. Supt* ... Stanberry, Mo
J. S. Hazen, *M. C. B* ... Stanberry, Mo
D. Moin. Div.: C. F. Meek, *A. Supt.* Des Moines, Ia
Walden's Bridge R. R. 3 g. 23 m. 3 lo. 37 cars.
John G. Scott, *Gen. Man* ... Jenks P. O., Tenn.
Wallkill Ry. (*See N. Y., West. Sh. & Buf.*)
Walla Walla & Columbia Riv. R. R. (*See Ore. Ry.*)
Walton R. R. 5 g. 10 m. 1 lo. 7 cars.
D. H. Walker, *Pres* ... Monroe, Ga.
Warren & Farnsworth Valley R. R.
3 g. 11 m. 3 lo. 39 cars.
A. D. Wood, *Supt* ... Warren, Pa.
Warwick Valley R. R. (*See Leh. & Hud. River.*)
Wasatch & Jordan Valley R. R. (*See Den. & Rio. Gr.*)
Washington, Ohio & West. R. R. 4-8½ g. 52 m. 5 lo. 87 c.
S. M. Brophy, *Supt* ... Alexandria Va.
Edward Dunn, *M. M* ... Alexandria, Va.
John Harrison, *M. C. B* ... Alexandria, Va.
Waynesburg & Washington Rd. 3 g. 29 m. 3 lo. 26 c.
C. E. Bower, *Supt* ... Waynesburg, Pa.
A. M. Kline, *M. C. B* ... Waynesburg, Pa.
Welland Ry. 4-8½ g. 25 m. 4 lo. 147 cars.
William Pay, *Supt* ... St. Catharines, Ont.
Jas. Taylor, *M. M* ... St. Catharines, Ont.
Wm. H. Pay, *M. C. B* ... St. Catharines, Ont.
West End Narrow Gauge Ry. 3 g. 16 m. 3 lo. 13 c.
Rolla Wells, *Supt* ... St. Louis, Mo.
M. M. Hodgman, *M. M* ... Florissant, Mo.
West Feliciana R. R. 4-8½ g. 27 m. 2 lo. 22 cars
J. R. McGehee, *Pr. & Gen. Supt.* Bayou Sara, La.
J. A. Tilton, *M. M. & C. B* ... Bayou Sara, La.
W. Va., Central & Pittsb'g Ry. 4-8½ g. 34 m. 4 lo. 114 c.
W. E. Porter, *Gen. Supt* ... Piedmont, W. Va.
Geo. W. Harrison, *Pur. Agt* ... Piedmont, W. Va.
E. W. Lippencott, *M. M. & M. C. B* ... Piedmont.
West & East R. R. (*See Ill. Cen.; N. O. Div.*)
West Jersey R. R. (*See Penn. R. R.; (3) Div.*)
Western R. R. (of Ala.) 5 g. 138 m. 15 lo. 270 cars.
Atlanta & W. Point Rd. 5 g. 87 m. 14 lo. 240 c.
Cecil Gabbett, *Gen. Man. & Supt* ... Mont., Ala.
C. D. Wall, *M. M* ... Montgomery, Ala.
F. M. Wade, *M. C. B* ... Montgomery, Ala.
Western Counties' Ry. 4-8½ g. 67 m. 8 lo. 137 cars
J. Brignell, *Supt* ... Yarmouth, N. S.
Western Maryland R. R. 4-8½ g. 157 m. 25 lo. 439 c
J. M. Hood, *Pr. & Gen. Man* ... Baltimore, Md.
R. J. Adair, *Pur. Agt* ... Baltimore, Md.
David Holtz, *Mast. of Mach.* Union Bridge, Md.
J. H. Nussear, *M. C. B* ... Union Bridge, Md.
Western No. Carolina R. R. 5 g. 210 m. 17 lo. 160 c.
V. E. McBee, *Supt* ... Salisbury, N. C.
Jos. P. Minetree, *Pur. Agt* ... Richmond, Va.
G. W. Gates, *M. M* ... Salisbury, N. C.
Western & Atlantic R. R. 5 g. 138 m. 58 lo. 952 c.
R. A. Anderson, *Gen. Supt* ... Atlanta, Ga.
A. B. Bostwick, *Asst. Supt* ... Atlanta, Ga.
John H. Flynn, *M. M. & C. B* ... Atlanta, Ga
Wheeling, Pittsburg & Baltimore R. R. (*See B. & O.*)
Wheeling & Lake Erie R. R. 267 m. 31 lo. 1,456 c.
M. D. Woodford, *Gen. Man* ... Toledo, O.
O. P. Dunbar, *Gen. M. M.* ... Norwalk, O.
John Hillhouse, *Div. M. M* ... Norwalk, O.
A. Galloway, *Div. M. M* ... Cambridge, O.
Whitby, Port Perry & Lindsay Ry. (*See Mid. of Can.*)
White Water R. R. (*See Ft. W., Cin. & Lou.*)
Whitefield & Jefferson R. R. (*See Bos., Con. & Mon.*)
Whitneyville & Machiasport R. R. 8 m. 2 lo. 48 c.
C. Sullivan, *G. M. & Pur. Agt.* Whitneyville, Me.
Wicomico & Pocomoke R. R. 4-8½ g. 30 m. 2 lo. 38 c.
L. Showell, *Pres* ... Berlin, Md.
Williamsport & North Branch R. R.
4-8½ g. 6 m. 1 lo. 2 cars.
B. G. Welch, *Man. & P. Agt* ... Hughesville, Pa.
J. V. Chamberlain, *Supt. & M. M.* do.
Williamstown R. R. 4-8½ g. 9 m. 1 lo. 10 cars.
Samuel Garwood, *Supt* ... Williamstown, N. J.
Wilmington, Columbia & Augusta R. R. (*See W. & W.*)
Wilmington & No'n R. R. 4-8¾ g. 85 m. 16 lo. 148 c.
J. H. Thompson, *Supt. & P. A.* Coatesville, Pa.
George Rommel, *M. M* ... Coatesville, Pa.
Alex. Maitland, *M. C. B* ... Coatesville, Pa.
Wilmington & Weldon; Northeastern; S. C. Central; Cheraw & Darlington; Cheraw & Salisbury; and Wilmington, Columbia & Augusta R. Rs.
5 g. 599 miles 70 locomotives 1,120 cars.
R. R. Bridgers, *Gen. Man* ... Wilmington, N. C.
J. F. Divine, *Gen. Supt* ... Wilmington, N. C.
John Bisset, *M. M* ... Wilmington, N. C.
W. H. Day, *M. C. B* ... Florence, S. C.
C. R. Clowe, *M. C. B.* (W. & W.) Wilmington, N. C.
Winifrede R. R. 4-9 g. 5 m. 1 lo. 65 cars.
Theodore Wright, *Pres* ... Philadelphia, Pa.
Windsor & Annapolis Ry. 4-8½ g. 130 m. 10 lo. 160 c.
P. Innes, *Gen. Man* ... Kentville, N. S.
Wm. Yould, *M. M* ... Kentville, N. S.
Wm. Grierson, *M. C. B* ... Kentville, N. S.
Wisconsin Central R. R. 4-8½ g. 480 m. 59 lo. 1,661 c.
F. N. Finney, *Gen. Man* ... Milwaukee, Wis.
E. K. Howes, *Pur. Agt* ... Milwaukee, Wis.
W. A. Short, *Supt. M. P. & M* ... Stevens Pt., Wis.
Mil. & E'n Divs.: A. A. Allen, *S.* Milwaukee, Wis.
Wis., Minn. & S. M. & N. Div.:
W. E. Carroll, *Supt* ... Stevens Point, Wis.
Wisconsin & Michigan R. R. (*See Mil. & North'n.*)
Wisconsin & Minnesota R. R. (*See Wis. Cen.*)
Wood River Branch R. R. 4-8½ g. 6 m. 2 lo. 3 cars.
L. M. Barber, *Supt* ... Hope Valley, R. I.
Woodstock R. R. 4-8½ g. 14 m. 1 lo. 3 cars.
J. G. Porter, *Supt* ... Woodstock, Vt.
Worcester R. R. (Md.) (*See Del., Md. & Va.*)
Worcester & Nashua; and Nashua & Rochester R. Rs.
4-8½ g. 95 m. 20 lo. 523 cars.
C. S. Turner, *Pres. & G. Man.* Worcester, Mass.
G. W. Hurlburt, *Supt* ... Worcester, Mass.
John G. Brady, *M. M. & C. B.* Worcester, Mass
Worcester & Shrewsbury R. R. 3 g. 3 m. 3 lo. 9 c.
J. J. Coburn, *Supt* ... Worcester, Mass.
G. E. Hapgood, *Pur. Agt* ... Worcester, Mass.
Chas. Cleveland, *M. M* ... Worcester, Mass.
Worcester & Somerset R. R. (*See N. Y., Phil. & Nor.*)

Y

York & Peach Bottom Ry. 3 g. 40 m. 4 lo. 62 c.
S. M. Manifold, *Supt. & Pur. Agt* ... York, Pa.
S. J. Williams, *M. M* ... York, Pa.
E. K. Williams, *M. C. B* ... York, Pa.
Youghiogheny R. R. 4-9 g. 12 m.
Wm. Wilson, *Supt* ... Irwin's, Pa